

```

<html class="rwd geo-override vis no-rtl headerfooter-menu3 js flexbox
flexboxlegacy canvas canvastext webgl touch geolocation postmessage no-
websql database indexeddb hashchange history draganddrop websockets rgba
hsla multiplebgs backgroundsize borderimage borderradius boxshadow
textshadow opacity cssanimations csscolumns cssgradients cssreflections
csstransforms csstransforms3d csstransitions fontface generatedcontent video
audio localstorage sessionstorage webworkers applicationcache svg inlinesvg
smil svgclippaths overthrow-enabled mobile iphone smallscreen ios ios15_6
ios15 safari safari15 webkit no-desktop portrait no-ipad no-ipod appleios"
lang="en" style="opacity: 1;"><head class="at-element-marker">
  <meta charset="UTF-8">

```

```

<title>3.4.1. Creating IPS File</title>

```

```

<link rel="preconnect" href="//dpm.demdex.net/" crossorigin="">
<link rel="dns-prefetch" href="//dpm.demdex.net/">
<link rel="preconnect" href="//starget.intel.com/">
<link rel="dns-prefetch" href="//starget.intel.com/">
<link rel="preconnect" href="//elqtrk.intel.com/">
<link rel="dns-prefetch" href="//elqtrk.intel.com/">
<link rel="dns-prefetch" href="//onsite2.researchintel.com/">
<link rel="preconnect" href="//tags.tiqcdn.com/" crossorigin="">
<link rel="dns-prefetch" href="//tags.tiqcdn.com/">
<link rel="preconnect" href="//www91.intel.com/">
<link rel="dns-prefetch" href="//www91.intel.com/">

```

```

  <link rel="preload" href="/content/dam/www/global/wap/performance-
config.js" as="script" type="text/javascript">
  <script src="//tms-global.intel.com/profile-cq.asmo-na/prod/utag.js"
type="text/javascript" async=""></script><script type="text/javascript"
src="/content/dam/www/global/wap/performance-config.js"></script>
  <link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/global/
targetDataCookie.min.js" as="script" type="text/javascript">
  <script src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/global/
targetDataCookie.min.js"></script>

```

```

<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
nav.min.css" as="style" type="text/css">

```

```
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intelone-display-regular.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intelone-display-medium.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intel-clear-latin.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intel-clear-latin-bold.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intel-clear-latin-italic.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intelone-display-bold.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intelone-display-light.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/site-
global-icons/resources/font/site-global-icons.woff2?16701488" as="font"
type="font/woff2" crossorigin="true">
```

```
<meta http-equiv="X-UA-Compatible" content="IE=Edge">
<!--[if lte IE 9]>
<meta http-equiv="X-UA-Compatible" content="IE=9"/>
<![endif]-->
```

```
<meta name="twitter:card" content="summary">

<meta name="keywords" content="">

<meta name="item_id"
content="/content/www/us/en/docs/programmable/683865/current/creating-ips-
file">

<meta name="description" content="">

<meta name="language" content="en">

<meta name="book_id" content="683865">

<meta name="twitter:image"
content="https://www.intel.com/content/dam/logos/logo-energyblue-1x1.png">

<meta name="partnum" content="UG-M10CONFIG">

<meta name="parent_id" content="666495">

<meta name="revision_date" content="5/26/2022">

<meta name="location" content="us">

<meta name="robots" content="follow,index,noarchive">

<meta name="X-Server" content="INTE-T1">


<meta property="og:image"
content="https://www.intel.com/etc.clientlibs/settings/wcm/designs/intel/us/en/
images/resources/printlogo.png">

<meta property="og:type" content="company">

<meta property="og:site_name" content="Intel">

<meta property="og:title" content="3.4.1. Creating IPS File">

<meta property="fb:admins" content="267985180046218">

<meta property="og:url"
content="https://www.intel.com/content/www/us/en/docs/programmable/
683865/current/creating-ips-file.html">

<meta property="og:description" content="">

<meta http-equiv="content-type" content="text/html; charset=utf-8">

<meta name="emtcontenttype" content="Content Type|Design and
Development Reference|Development Guides|Development User Guides;Content
```

Type|Design and Development Reference|Development Guides|Development User Guides;">

<meta name="contentpath" content="/content/www/us/en/docs/programmable/683865/current/creating-ips-file">

<meta name="authoreddate" content="">

<meta name="localecode" content="en\_US">

<meta name="reimaginetoplevelcategory" content="Audience|Business|Technical Decision Maker (TDM)|Developer|FPGA Engineer;">

<meta name="mime" content="text/html">

<meta name="format" content="udeDocumentationDetail">

<meta name="excludefromviews" content="false">

<meta name="taxonomy" content="etm-7F4D4D11-85BF-4ACF-A305-3D077F78760B;etm-7a535fe38d6c4b1aa9749d79c0a2c89d;etm-a065764d12404422a4010b8396828f63;etm-83741EA4-0466-4A89-9395-C861EDA3D38B;etm-83741EA4-0466-4A89-9395-C861EDA3D38B;etm-74fc3401b6764c42ad8255f4feb9bd9e;etm-562F15FC-A2B4-4AC9-AE56-12E106ADD48F;etm-d370f01035d54b9a8dc4f13a6e3665e4;">

<meta name="title" content="3.4.1. Creating IPS File">

<meta name="menu" content="">

<meta name="emtsubject" content="Subject|Design|FPGA Design|Remote System Upgrades;">

<meta name="reimaginefilters" content="Primary Content Tagging|Intel® FPGAs|Intel® Programmable Devices|Intel® MAX®|Intel® MAX® 10 FPGAs;Subject|Design|FPGA Design|Remote System Upgrades;Curated|DO NOT USE IN EXTERNAL FILTERS|Recommended;Primary Content Tagging|Intel® FPGAs|Intel® Programmable Devices;Primary Content Tagging|Intel® FPGAs|Intel® Programmable Devices;Content Type|Design and Development Reference|Development Guides|Development User Guides;Primary Content Tagging|Intel® FPGAs|Intel® FPGA Intellectual Property|Basic Functions;">

<meta name="generic1" content="true">

<meta name="emtaudience" content="Audience|Business|Technical Decision Maker (TDM)|Developer|FPGA Engineer;">

<meta name="intelkeywords" content="">

<meta name="lastModifieddate" content="">

<meta name="thumbnailurl" content="">

```
<meta name="viewport" content="width=device-width, initial-scale=1.0">
```

```
<link rel="icon" type="image/png" sizes="32x32"  
href="/etc.clientlibs/settings/wcm/designs/intel/default/resources/favicon-  
32x32.png">  
<link rel="icon" type="image/png" sizes="16x16"  
href="/etc.clientlibs/settings/wcm/designs/intel/default/resources/favicon-  
16x16.png">  
<link rel="shortcut icon"  
href="/etc.clientlibs/settings/wcm/designs/intel/default/resources/favicon.ico">
```

```
<link rel="canonical"  
href="https://www.intel.com/content/www/us/en/docs/programmable/683865/  
current/creating-ips-file.html">  
<link rel="alternate" hreflang="ja-jp"  
href="https://www.intel.co.jp/content/www/jp/ja/docs/programmable/683865/  
current/creating-ips-file.html">  
    <link rel="alternate" hreflang="zh-cn"  
href="https://www.intel.cn/content/www/cn/zh/docs/programmable/683865/  
current/creating-ips-file.html">  
    <link rel="alternate" hreflang="en-us"  
href="https://www.intel.com/content/www/us/en/docs/programmable/683865/  
current/creating-ips-file.html">  
    <link rel="alternate" hreflang="x-default"  
href="https://www.intel.com/content/www/us/en/docs/programmable/683865/  
current/creating-ips-file.html">
```

```
<style>  
@-ms-viewport{width:device-width;}  
  
</style>
```

```
    <link rel="preload"  
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/intc-  
core.min.css" as="style"><link rel="stylesheet"  
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/intc-
```

```
core.min.css" type="text/css"><script
src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/intc-
core.min.js" defer=""></script>
```

```
<script>bazadebezolkohpepadr="714539430"</script><script
type="text/javascript" src="https://www.intel.com/akam/13/2a97035e"
defer=""></script><script
src="https://cdnjs.cloudflare.com/ajax/libs/clipboard.js/2.0.0/clipboard.min.js"></
script><style type="text/css">.MathJax_Hover_Frame {border-radius: .25em; -
webkit-border-radius: .25em; -moz-border-radius: .25em; -khtml-border-
radius: .25em; box-shadow: 0px 0px 15px #83A; -webkit-box-shadow: 0px 0px
15px #83A; -moz-box-shadow: 0px 0px 15px #83A; -khtml-box-shadow: 0px 0px
15px #83A; border: 1px solid #A6D ! important; display: inline-block; position:
absolute}
.MathJax_Menu_Button .MathJax_Hover_Arrow {position: absolute; cursor:
pointer; display: inline-block; border: 2px solid #AAA; border-radius: 4px; -
webkit-border-radius: 4px; -moz-border-radius: 4px; -khtml-border-radius: 4px;
font-family: 'Courier New',Courier; font-size: 9px; color: #F0F0F0}
.MathJax_Menu_Button .MathJax_Hover_Arrow span {display: block; background-
color: #AAA; border: 1px solid; border-radius: 3px; line-height: 0; padding: 4px}
.MathJax_Hover_Arrow:hover {color: white!important; border: 2px solid #CCC!
important}
.MathJax_Hover_Arrow:hover span {background-color: #CCC!important}
</style><style type="text/css">#MathJax_About {position: fixed; left: 50%;
width: auto; text-align: center; border: 3px outset; padding: 1em 2em;
background-color: #DDDDDD; color: black; cursor: default; font-family: message-
box; font-size: 120%; font-style: normal; text-indent: 0; text-transform: none;
line-height: normal; letter-spacing: normal; word-spacing: normal; word-wrap:
normal; white-space: nowrap; float: none; z-index: 201; border-radius: 15px; -
webkit-border-radius: 15px; -moz-border-radius: 15px; -khtml-border-radius:
15px; box-shadow: 0px 10px 20px #808080; -webkit-box-shadow: 0px 10px
20px #808080; -moz-box-shadow: 0px 10px 20px #808080; -khtml-box-shadow:
0px 10px 20px #808080; filter:
progid:DXImageTransform.Microsoft.dropshadow(OffX=2, OffY=2, Color='gray',
Positive='true')}
#MathJax_About.MathJax_MousePost {outline: none}
.MathJax_Menu {position: absolute; background-color: white; color: black; width:
auto; padding: 5px 0px; border: 1px solid #CCCCC; margin: 0; cursor: default;
font: menu; text-align: left; text-indent: 0; text-transform: none; line-height:
normal; letter-spacing: normal; word-spacing: normal; word-wrap: normal; white-
space: nowrap; float: none; z-index: 201; border-radius: 5px; -webkit-border-
radius: 5px; -moz-border-radius: 5px; -khtml-border-radius: 5px; box-shadow:
0px 10px 20px #808080; -webkit-box-shadow: 0px 10px 20px #808080; -moz-
box-shadow: 0px 10px 20px #808080; -khtml-box-shadow: 0px 10px 20px
#808080; filter: progid:DXImageTransform.Microsoft.dropshadow(OffX=2,
OffY=2, Color='gray', Positive='true')}
.MathJax_MenuItem {padding: 1px 2em; background: transparent}
.MathJax_MenuArrow {position: absolute; right: .5em; padding-top: .25em; color:
#666666; font-size: .75em}
```

```

.MathJax_MenuActive .MathJax_MenuArrow {color: white}
.MathJax_MenuArrow.RTL {left: .5em; right: auto}
.MathJax_MenuCheck {position: absolute; left: .7em}
.MathJax_MenuCheck.RTL {right: .7em; left: auto}
.MathJax_MenuRadioCheck {position: absolute; left: .7em}
.MathJax_MenuRadioCheck.RTL {right: .7em; left: auto}
.MathJax_MenuLabel {padding: 1px 2em 3px 1.33em; font-style: italic}
.MathJax_MenuRule {border-top: 1px solid #DDDDDD; margin: 4px 3px}
.MathJax_MenuDisabled {color: GrayText}
.MathJax_MenuActive {background-color: #606872; color: white}
.MathJax_MenuDisabled:focus, .MathJax_MenuLabel:focus {background-color:
#E8E8E8}
.MathJax_ContextMenu:focus {outline: none}
.MathJax_ContextMenu .MathJax_MenuItem:focus {outline: none}
#MathJax_AboutClose {top: .2em; right: .2em}
.MathJax_Menu .MathJax_MenuClose {top: -10px; left: -10px}
.MathJax_MenuClose {position: absolute; cursor: pointer; display: inline-block;
border: 2px solid #AAA; border-radius: 18px; -webkit-border-radius: 18px; -moz-
border-radius: 18px; -khtml-border-radius: 18px; font-family: 'Courier
New', Courier; font-size: 24px; color: #F0F0F0}
.MathJax_MenuClose span {display: block; background-color: #AAA; border:
1.5px solid; border-radius: 18px; -webkit-border-radius: 18px; -moz-border-
radius: 18px; -khtml-border-radius: 18px; line-height: 0; padding: 8px 0 6px}
.MathJax_MenuClose:hover {color: white!important; border: 2px solid #CCC!
important}
.MathJax_MenuClose:hover span {background-color: #CCC!important}
.MathJax_MenuClose:hover:focus {outline: none}
</style><style type="text/css">.MathJax_Preview .MJXf-math {color: inherit!
important}
</style><style type="text/css">.MJX_Assistive_MathML {position: absolute!
important; top: 0; left: 0; clip: rect(1px, 1px, 1px, 1px); padding: 1px 0 0 0!
important; border: 0!important; height: 1px!important; width: 1px!important;
overflow: hidden!important; display: block!important; -webkit-touch-callout:
none; -webkit-user-select: none; -khtml-user-select: none; -moz-user-select:
none; -ms-user-select: none; user-select: none}
.MJX_Assistive_MathML.MJX_Assistive_MathML_Block {width: 100%!important}
</style><style type="text/css">#MathJax_Zoom {position: absolute;
background-color: #F0F0F0; overflow: auto; display: block; z-index: 301;
padding: .5em; border: 1px solid black; margin: 0; font-weight: normal; font-
style: normal; text-align: left; text-indent: 0; text-transform: none; line-height:
normal; letter-spacing: normal; word-spacing: normal; word-wrap: normal; white-
space: nowrap; float: none; -webkit-box-sizing: content-box; -moz-box-sizing:
content-box; box-sizing: content-box; box-shadow: 5px 5px 15px #AAAAAA; -
webkit-box-shadow: 5px 5px 15px #AAAAAA; -moz-box-shadow: 5px 5px 15px
#AAAAAA; -khtml-box-shadow: 5px 5px 15px #AAAAAA; filter:
progid:DXImageTransform.Microsoft.dropshadow(OffX=2, OffY=2, Color='gray',
Positive='true')}
#MathJax_ZoomOverlay {position: absolute; left: 0; top: 0; z-index: 300; display:
inline-block; width: 100%; height: 100%; border: 0; padding: 0; margin: 0;
background-color: white; opacity: 0; filter: alpha(opacity=0)}
#MathJax_ZoomFrame {position: relative; display: inline-block; height: 0; width:
0}

```

```

#MathJax_ZoomEventTrap {position: absolute; left: 0; top: 0; z-index: 302;
display: inline-block; border: 0; padding: 0; margin: 0; background-color: white;
opacity: 0; filter: alpha(opacity=0)}
</style><style type="text/css">.MathJax_Preview {color: #888}
#MathJax_Message {position: fixed; left: 1px; bottom: 2px; background-color:
#E6E6E6; border: 1px solid #959595; margin: 0px; padding: 2px 8px; z-index:
102; color: black; font-size: 80%; width: auto; white-space: nowrap}
#MathJax_MSIE_Frame {position: absolute; top: 0; left: 0; width: 0px; z-index:
101; border: 0px; margin: 0px; padding: 0px}
.MathJax_Error {color: #CC0000; font-style: italic}
</style><script>var isTargetEnabled =false;</script><script>
  var cq_tms = {
    wa_emtcontenttype:
"emtcontenttype:designanddevelopmentreference/developerguide/developeruse
rguide",
    wa_primarycontenttagging:
"primarycontenttagging:intelfpgas/intelprogrammabledevices,primarycontenttag
ging:intelfpgas/intelprogrammabledevices/intelmax/
intelmax10fpgas,primarycontenttagging:intelfpgas/
intelfpgaintellectualproperty/basicfunctions",
    wa_curated: "curated:donotuseinexternalfilters/recommended",
    wa_emtsubject: "emtsubject:design/fpgadesign/remotesystemupgrades",

    wa_industry_type: "",
    wa_partner_prog: "",
    wa_subject: "",
    wa_biz_size: "",
    wa_emt_org: "",
    wa_emt_intel: "",
    wa_partner_type: "",
    wa_programidentifier: "",
    wa_location: "us",
    wa_language: "en",
    wa_english_title: "3.4.1. Creating IPS File",
    wa_content_type: "",
    wa_intel_platform: "",
    wa_applications: "",
    wa_local: "en_US",
    wa_intel_technology: "",
    wa_system_type: "",
    wa_product_name: "",
    wa_audience:
"emtaudience:business/btssbusinesstechnologysolutionspecialist/developer/
fpgaengineer",
    wa_life_cycle: "",
    wa_cq_url:
"/content/www/us/en/docs/programmable/683865/current/creating-ips-file.html",
    wa_page_type_micro: "udeDocumentationDetail",
    wa_env: "prd",
    wa_cq_pub_env: "publish",
    wa_transl_status: "",
    wa_product_id: "98847,216704,216704,215648",
    wa_software: "",
    wa_reference_design: "",

```



```
wa_codename: "",
wa_created_date: "1639788876744",
wa_modified_date: "1639788876752",
wa_off_time: "1924992000000",
wa_ownedby: "",
wa_managedby: "",
wa_idz_nid : "",
wa_event_type: "",
wa_idz_custom_tags: "",
wa_programming_language: "",
wa_skill_level: "",
wa_solution: "",
wa_product_formFactor: "",
wa_operating_system: "",
wa_marketing_products: "",
wa_ssg_third_party_prod_sys_sol: "",
wa_upeNamespace: "",
wa_doc_id:"683865",
wa_doc_version:"current",
wa_doc_publishdate:"5/26/2022",
```

```
wa_secondary_content_type:
"emtcontenttype:designanddevelopmentreference/developerguide/developeruse
rguide"
```

```
};
```

```
cq_tms.wa_tms_sync_load = "deferred";
```

```
</script><script>
var chatContextObj = {};
chatContextObj["locale"] = 'en-US';
chatContextObj["app"] = 'PSG';
chatContextObj["supportProductMap"] = 'NA';
</script><script>!function(){var e=setInterval(function(){if(typeof
$CQ&&($CQ(function(){CQ_Analytics.SegmentMgr.loadSegments("/etc/segmenta
tion"),CQ_Analytics.ClientContextUtils.init("/etc/clientcontext/
intel",window.location.pathname.substr(0,window.location.pathname.indexOf("."))
))),clearInterval(e))},100)}();</script><link rel="stylesheet" type="text/css"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
commons-page.min.css"><link rel="stylesheet" type="text/css"
href="/etc.clientlibs/settings/wcm/designs/intel/us/en/css/resources/css/
intel.rwd.override.css"><link rel="stylesheet" type="text/css"
href="/etc.clientlibs/settings/wcm/designs/intel/us/en/css/resources/css/
intel.rwd.override.css"><style type="text/css">.MJXp-script {font-size: .8em}
.MJXp-right {-webkit-transform-origin: right; -moz-transform-origin: right; -ms-
transform-origin: right; -o-transform-origin: right; transform-origin: right}
.MJXp-bold {font-weight: bold}
```

```

.MJXp-italic {font-style: italic}
.MJXp-scr {font-family: MathJax_Script,'Times New
Roman',Times,STIXGeneral,serif}
.MJXp-frak {font-family: MathJax_Frakur,'Times New
Roman',Times,STIXGeneral,serif}
.MJXp-sf {font-family: MathJax_SansSerif,'Times New
Roman',Times,STIXGeneral,serif}
.MJXp-cal {font-family: MathJax_Caligraphic,'Times New
Roman',Times,STIXGeneral,serif}
.MJXp-mono {font-family: MathJax_Typewriter,'Times New
Roman',Times,STIXGeneral,serif}
.MJXp-largeop {font-size: 150%}
.MJXp-largeop.MJXp-int {vertical-align: -.2em}
.MJXp-math {display: inline-block; line-height: 1.2; text-indent: 0; font-family:
'Times New Roman',Times,STIXGeneral,serif; white-space: nowrap; border-
collapse: collapse}
.MJXp-display {display: block; text-align: center; margin: 1em 0}
.MJXp-math span {display: inline-block}
.MJXp-box {display: block!important; text-align: center}
.MJXp-box:after {content: " "}
.MJXp-rule {display: block!important; margin-top: .1em}
.MJXp-char {display: block!important}
.MJXp-mo {margin: 0 .15em}
.MJXp-mfrac {margin: 0 .125em; vertical-align: .25em}
.MJXp-denom {display: inline-table!important; width: 100%}
.MJXp-denom > * {display: table-row!important}
.MJXp-surd {vertical-align: top}
.MJXp-surd > * {display: block!important}
.MJXp-script-box > * {display: table!important; height: 50%}
.MJXp-script-box > * > * {display: table-cell!important; vertical-align: top}
.MJXp-script-box > *:last-child > * {vertical-align: bottom}
.MJXp-script-box > * > * > * {display: block!important}
.MJXp-mphantom {visibility: hidden}
.MJXp-munderover {display: inline-table!important}
.MJXp-over {display: inline-block!important; text-align: center}
.MJXp-over > * {display: block!important}
.MJXp-munderover > * {display: table-row!important}
.MJXp-mtable {vertical-align: .25em; margin: 0 .125em}
.MJXp-mtable > * {display: inline-table!important; vertical-align: middle}
.MJXp-mtr {display: table-row!important}
.MJXp-mtd {display: table-cell!important; text-align: center; padding: .5em 0
0 .5em}
.MJXp-mtr > .MJXp-mtd:first-child {padding-left: 0}
.MJXp-mtr:first-child > .MJXp-mtd {padding-top: 0}
.MJXp-mlabeledtr {display: table-row!important}
.MJXp-mlabeledtr > .MJXp-mtd:first-child {padding-left: 0}
.MJXp-mlabeledtr:first-child > .MJXp-mtd {padding-top: 0}
.MJXp-merror {background-color: #FFFF88; color: #CC0000; border: 1px solid
#CC0000; padding: 1px 3px; font-style: normal; font-size: 90%}
.MJXp-scale0 {-webkit-transform: scaleX(.0); -moz-transform: scaleX(.0); -ms-
transform: scaleX(.0); -o-transform: scaleX(.0); transform: scaleX(.0)}
.MJXp-scale1 {-webkit-transform: scaleX(.1); -moz-transform: scaleX(.1); -ms-
transform: scaleX(.1); -o-transform: scaleX(.1); transform: scaleX(.1)}

```

```

.MJXp-scale2 {-webkit-transform: scaleX(.2); -moz-transform: scaleX(.2); -ms-
transform: scaleX(.2); -o-transform: scaleX(.2); transform: scaleX(.2)}
.MJXp-scale3 {-webkit-transform: scaleX(.3); -moz-transform: scaleX(.3); -ms-
transform: scaleX(.3); -o-transform: scaleX(.3); transform: scaleX(.3)}
.MJXp-scale4 {-webkit-transform: scaleX(.4); -moz-transform: scaleX(.4); -ms-
transform: scaleX(.4); -o-transform: scaleX(.4); transform: scaleX(.4)}
.MJXp-scale5 {-webkit-transform: scaleX(.5); -moz-transform: scaleX(.5); -ms-
transform: scaleX(.5); -o-transform: scaleX(.5); transform: scaleX(.5)}
.MJXp-scale6 {-webkit-transform: scaleX(.6); -moz-transform: scaleX(.6); -ms-
transform: scaleX(.6); -o-transform: scaleX(.6); transform: scaleX(.6)}
.MJXp-scale7 {-webkit-transform: scaleX(.7); -moz-transform: scaleX(.7); -ms-
transform: scaleX(.7); -o-transform: scaleX(.7); transform: scaleX(.7)}
.MJXp-scale8 {-webkit-transform: scaleX(.8); -moz-transform: scaleX(.8); -ms-
transform: scaleX(.8); -o-transform: scaleX(.8); transform: scaleX(.8)}
.MJXp-scale9 {-webkit-transform: scaleX(.9); -moz-transform: scaleX(.9); -ms-
transform: scaleX(.9); -o-transform: scaleX(.9); transform: scaleX(.9)}
.MathJax_PHTML.noError {vertical-align: ; font-size: 90%; text-align: left; color:
black; padding: 1px 3px; border: 1px solid}
</style><style id="wap-consent-banner-style-hide">#onetrust-banner-
sdk, .onetrust-pc-dark-filter.ot-fade-in{display:none !important}</style><script
type="text/javascript" async="" charset="utf-8" id="utag_intel.profile-cq.asmo-
na_2080" src="//tms-global.intel.com/profile-cq.asmo-na/prod/utag.2080.js?
utv=ut4.48.202207221456"></script><script type="text/javascript" async=""
charset="utf-8" id="utag_intel.profile-cq.asmo-na_1600" src="//tms-
global.intel.com/profile-cq.asmo-na/prod/utag.1600.js?
utv=ut4.48.202207221456"></script><script type="text/javascript" async=""
charset="utf-8" id="utag_intel.profile-cq.asmo-na_1731" src="//tms-
global.intel.com/profile-cq.asmo-na/prod/utag.1731.js?
utv=ut4.48.202207221456"></script><script type="text/javascript" async=""
charset="utf-8" id="utag_intel.profile-cq.asmo-na_1715" src="//tms-
global.intel.com/profile-cq.asmo-na/prod/utag.1715.js?
utv=ut4.48.202207221456"></script><script type="text/javascript" async=""
charset="utf-8" id="tiqapp" src="https://tags.tiqcdn.com/utag/tiqapp/utag.v.js?
a=intel/profile-cq.asmo-na/202207221456&cb=1659397251616"></
script><style id="at-makers-style" class="at-flicker-control">
.mboxDefault {visibility: hidden;}
</style></head>

```

```
<body class="page-is-published global-nav new_browser cookie-  
oldbrowser"><div id="MathJax_Message" style="display: none;"></div>
```

```
<div class="skip-to-main-content">  
  <div class="sb-skipLinkWrapper invisible">  
    <a href="#primary-content" class="inline-block bg-greenDarkApron color-  
textWhite text-bold text-noUnderline sb-skipLink visible">Skip To Main  
Content</a>  
  </div>  
</div>
```

```
<script>
  var isLoggedIn = (document.cookie.indexOf('IGHFLoggedIn') != -1);
  var loginValidateURL =
'https://www.intel.com/libs/apps/intel/myintel/profile.html/validate/loggedin';
</script>
```

<div class="global">

```
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
nav.min.css" as="style"><link rel="stylesheet"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
nav.min.css" type="text/css">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
secondaryNav.min.css" as="style"><link rel="stylesheet"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
secondaryNav.min.css" type="text/css">
```

```

<div class="global-nav-redesign global component" data-
component="global-nav-redesign" data-component-id="1">
  <header role="banner">
    <nav class="intel-navbar advanced-search" role="navigation" aria-
label="main navigation" data-igm="">
      <!-- Brand and toggle get grouped for better mobile display -->
      <div class="navbar-wraper">

        <div class="navbar-logo">
          <a href="/content/www/us/en/homepage.html" alt="Intel
homepage" class="intel-logo-rebrand">

            
          </a>
        </div>

        <div class="navbar-left">
          <!-- mobile: menu toggle, sign in -->
          <div class="visible-xs">
            <button type="button" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" class="mega-hamburger
nav-link-icon nav-link-icon-toggle collapsed" data-target="#primary-nav" aria-
expanded="false" aria-controls="primary-nav" data-mega-
control="hamburger">
              <span class="sr-only">Toggle Navigation</span>
              <span class="fa-intel-menu icon-toggle-off"></span>
              <span class="fa-cancel-thin icon-toggle-on"></span>
            </button>
          </div>

          <!-- START DYNAMIC NAVIGATION MENEU -->
          <div class="collapse mega-menu-collapse" id="primary-nav">
            <div class="mega-menu-wrap">
              <ol class="mega-navbar unique-container-global-nav-
items">

                <!-- Start: Primary Nav Items -->

```

```
<li class="primary-nav-item">
  <button role="button" class="nav-link-primary collapsed" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" id="trigger-menu-0" data-
parent="#primary-nav" data-target="#menu-0" data-mega-control="1" aria-
expanded="false" data-secure-link="none"
aria-controls="menu-0">Products</button>
```

```
<div class="mega-panel collapse" id="menu-0" role="region" aria-
expanded="false" aria-hidden="true" aria-label="Products Menu">
```

```
<div class="mega-panel-wrap">
  <div class="mega-panel-body">
    <div class="mega-body-wrap">
```

```
      <!-- If there is an unique level 2 it will use mega panel
layout !-->
```



<!-- +-----+ -->

```
<div class="mega-panel-heading" data-secure-link="none">
  <div class="nav-l2-container">
    <a href="/content/www/us/en/products/overview.html" class="nav-l2
nav-l2--no-border" data-
wap="{&quot;category&quot;:&quot;products&quot;,&quot;sectiontype&quot;:&
quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
      <span class=""></span>
      Products Home
    </a>
  </div>
```

```
<div class="panel-content flex-content-wrap">
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/details/processors.html" class="nav-l3
has-link" data-wap="{&quot;category&quot;:&quot;products-
home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class="fa-processors"></span>
  Processors
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/products/details/processors/xeon/scalable.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Xeon® Scalable
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/xeon.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Xeon®
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/core.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Core™
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/pentium.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Pentium®
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/celeron.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Celeron®
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/atom.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel Atom®
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/movidius-
vpu.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Movidius™ VPUs
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/embedded-
processors.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    IoT and Embedded Processors
  </a>
</li>
```

```
</ul>
</div>
```

</div>

<!-- +-----+ -->

<div class="panel-item" data-secure-link="none">

<a href="/content/www/us/en/products/systems-devices.html" class="nav-l3  
has-link" data-wap="{&quot;category&quot;:&quot;products-  
home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&  
quot;:&quot;level3&quot;}">  
    <span class="fa-system-devices"></span>  
    Systems & Devices  
</a>

<div class="panel-item-content">  
    <ul class="panel-links nav-l4-list list-unstyled">



<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/products/systems-devices/laptops/evo.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Evo™
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/systems-devices/laptops.html"
class="nav-l4" data-
```

```
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Laptops
</a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
    <a
href="/content/www/us/en/products/docs/boards-kits/nuc/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Intel® NUC
    </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/products/systems-devices/desktops.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Desktops
      </a>
    </li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
```

```
        <a
href="/content/www/us/en/products/systems-devices/workstations.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Workstations
    </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
        <a
href="/content/www/us/en/architecture-and-technology/vpro/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Intel vPro®
    </a>
</li>
```

```
</ul>
</div>
```

</div>

<!-- +-----+ -->

<div class="panel-item" data-secure-link="none">

<a href="/content/www/us/en/products/details/servers.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;products-home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&quot;:&quot;level3&quot;}">

<span class="fa-server-products"></span>  
Server Products  
</a>

<div class="panel-item-content">  
<ul class="panel-links nav-l4-list list-unstyled">

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/servers/server-
systems.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Single Node Servers
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/servers/multi-node-server-
systems.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
```

```

        <span class=""></span>
        Multi Node Servers
    </a>
</li>

```

```
<!-- +-----+ -->
```

```

    <li data-secure-link="none">
        <a href="/content/www/us/en/products/details/servers/data-center-
systems.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
            <span class=""></span>
            Intel® Data Center Systems
        </a>
    </li>

```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/servers/server-
chassis.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Server Chassis
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/servers/server-
boards.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
```



```
<span class=""></span>
  Server Boards
</a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/servers/raid.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    SAS/RAID Products
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/server-management/intel-server-
management.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Server Management
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/programmable.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;products-home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&quot;:&quot;level3&quot;}">
  <span class="fa-fpga-products"></span>
  FPGAs & Programmable Devices
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/products/details/fpga.html" class="nav-l4" data-wap="{&quot;category&quot;:&quot;products-home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Intel® FPGAs
      </a>
    </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/programmable/edge-centric-
fpga.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Edge-Centric FPGAs
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/fpga/max.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    CPLDs
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/programmable/configuration-
device.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Configuration Devices
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/products/details/fpga/development-tools/quartus-
prime.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Quartus® Prime Design Software
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/fpga/intellectual-
property.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intellectual Property
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/fpga/development-
kits.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Boards & Kits
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/fpga/platforms/pac.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Acceleration Cards
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```



<!-- +-----+ -->

<div class="panel-item" data-secure-link="none">

<a href="/content/www/us/en/products/details/easic.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;products-home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&quot;:&quot;level3&quot;}">  
    <span class="fa-processors"></span>  
    Structured ASICs  
</a>

<div class="panel-item-content">  
    <ul class="panel-links nav-l4-list list-unstyled">

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/easic/n5x.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® eASIC™ N5X Devices
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/easic/n3xs.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® eASIC™ N3XS Devices
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/easic/n3x.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® eASIC™ N3X Devices
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/easic/easicopy.html"
class="nav-l4" data-
wap="{&quot;category&quot;;&quot;&quot;;&quot;sectiontype&quot;;&quot;sub
heading&quot;;&quot;linktype&quot;;&quot;level4&quot;}">
    <span class=""></span>
    Intel® easicopy™ Devices
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/details/chipsets.html" class="nav-l3 has-
link" data-wap="{&quot;category&quot;;&quot;products-
```

```
home";&quot;sectiontype";&quot;subheading";&quot;linktype&
quot;;&quot;level3"}>
  <span class="fa-chipsets-1"></span>
  Chipsets
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/chipsets/mobile-
chipsets.html" class="nav-l4" data-
wap="{&quot;category&quot;;&quot;sectiontype&quot;;&quot;sub
heading&quot;;&quot;linktype&quot;;&quot;level4&quot;}">
    <span class=""></span>
    Mobile
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/chipsets/desktop-
chipsets.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Desktop
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/chipsets/server-chipsets.html"
class="nav-l4" data-
```

```
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Server
</a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
        <a href="/content/www/us/en/documentation-resources/developer.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
            <span class=""></span>
            Embedded
        </a>
    </li>
```

```
</ul>
</div>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/details/discrete-gpus.html" class="nav-l3  
has-link" data-wap="{&quot;category&quot;:&quot;products-  
home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&  
quot;:&quot;level3&quot;}">
```

```
  <span class="fa-discrete-graphic-gpu-spark"></span>  
  Graphics Processing Units  
</a>
```

```
<div class="panel-item-content">
```

```
  <ul class="panel-links nav-l4-list list-unstyled">
```



<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/discrete-gpus/arc.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Intel® Arc™
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/discrete-gpus/iris-xe-max.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Intel® Iris® X<sup>e</sup> MAX
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/discrete-gpus/server-graphics-
card.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Server GPU
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->

<div class="panel-item" data-secure-link="none">

<a href="/content/www/us/en/products/details/memory-storage.html"  
class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;products-  
home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&  
quot;:&quot;level3&quot;}">  
    <span class="fa-memory-storage-1"></span>  
    Memory & Storage  
</a>

<div class="panel-item-content">  
    <ul class="panel-links nav-l4-list list-unstyled">

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/memory-storage.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Solid State Drives
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/memory-storage/optane-
memory.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Optane™ Memory
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/docs/memory-storage/optane-
persistent-memory/overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Optane™ Persistent Memory
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/details/wireless.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;products-home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&quot;:&quot;level3&quot;}">
  <span class="fa-wireless-products"></span>
  Wireless Products
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/products/details/wireless/killer-series.html"
class="nav-l4" data-
```

```
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
  Intel® Killer™ Wireless Products
</a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/wireless/wi-fi-6e-
series.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Wi-Fi 6E Products
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/wireless/wi-fi-6-
series.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Wi-Fi 6 Products
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/wireless/wireless-ac-
products.html" class="nav-l4" data-
```



wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub  
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">

<span class=""></span>

Intel® Wireless-AC Products

</a>

</li>

</ul>

</div>

</div>

<!-- +-----+ -->

<div class="panel-item" data-secure-link="none">

<a href="/content/www/us/en/products/network-io.html" class="nav-l3 has-link"  
data-wap="{&quot;category&quot;:&quot;products-  
home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&  
quot;:&quot;level3&quot;}">

<span class="fa-ethernet-products"></span>

Network Communications and I/O

</a>

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a
href="/content/www/us/en/architecture-and-technology/ethernet.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Intel® Ethernet Technologies
      </a>
    </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/ethernet.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Intel® Ethernet Products
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/network-io/smartnic.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Infrastructure Processing Units (IPUs)
  </a>
```

</li>

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/network-io/high-performance-
fabrics/silicon-photonics.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Silicon Photonics Optical Transceivers
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/products/network-io/programmable-
ethernet-switch.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Programmable Ethernet Switch Products
      </a>
    </li>
```

```
  </ul>
</div>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="https://ark.intel.com/content/www/us/en/ark.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;products-home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&quot;:&quot;level3&quot;}">
  <span class="fa-book"></span>
  Product Specifications
</a>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</li>
```

```
<li class="primary-nav-item">
  <button role="button" class="nav-link-primary collapsed" data-wap="{&quot;linktype&quot;:&quot;level1&quot;}" id="trigger-menu-1" data-parent="#primary-nav" data-target="#menu-1" data-mega-control="l1" aria-expanded="false" data-secure-link="none" aria-controls="menu-1">Support</button>
```

```
<div class="mega-panel collapse" id="menu-1" role="region" aria-  
expanded="false" aria-hidden="true">
```

```
<div class="mega-panel-wrap">  
  <div class="mega-panel-body">  
    <div class="mega-body-wrap">
```

```
      <!-- If there is an unique level 2 it will use mega panel  
layout !-->
```

```
<div class="panel-content flex-content-wrap">
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;:&quot;&quot;;supportanalytics&quot;,&quot;sectiontype&
quot;:&quot;&quot;;subheading&quot;,&quot;linktype&quot;:&quot;&quot;;level2&quot;}">
    <span class=""></span>
    Drivers & Downloads
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/support/detect.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;&quot;;&quot;sectiontype&quot;:&quot;&quot;;sub
heading&quot;,&quot;linktype&quot;:&quot;&quot;;level4&quot;}">
    <span class=""></span>
    Auto-update your Drivers
  </a>
</li>
```



<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/download-center/home.html" class="nav-
l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Download Center
  </a>
</li>
```

```
</ul>
</div>
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;:&quot;supportanalytics&quot;,&quot;sectiontype&
quot;:&quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
    <span class=""></span>
    Support For
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/support.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Products
      </a>
    </li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/developer/get-help/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Developers
      </a>
    </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/supplier/resources/self-help/intel-
corporation-support.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Suppliers
  </a>
</li>
```

```
</ul>
</div>
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;;&quot;supportanalytics&quot;;&quot;sectiontype&
quot;;&quot;subheading&quot;;&quot;linktype&quot;;&quot;level2&quot;}">
    <span class=""></span>
    Resources
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/support/topics/utility-tools.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Product Tools & Utilities
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="https://community.intel.com/" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Support Community
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="https://supporttickets.intel.com/servicecenter?lang=en-US"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Warranty Information
  </a>
</li>
```

<!-- +-----+ -->

```

    <li data-secure-link="none">
      <a href="/content/www/us/en/support/contact-intel.html" class="nav-l4"
data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Contact Support
      </a>
    </li>

```

```

    </ul>
  </div>
</div>

```

```

    </div>
  </div>
</div>
</div>
</div>
</li>

```



```
<li class="primary-nav-item">
  <button role="button" class="nav-link-primary collapsed" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" id="trigger-menu-2" data-
parent="#primary-nav" data-target="#menu-2" data-mega-control="l1" aria-
expanded="false" data-secure-link="none" aria-controls="menu-
2">Solutions</button>
```

```
<div class="mega-panel collapse" id="menu-2" role="region" aria-
expanded="false" aria-hidden="true">
```

```
<div class="mega-panel-wrap">
  <div class="mega-panel-body">
    <div class="mega-body-wrap">
```

```
      <!-- If there is an unique level 2 it will use mega panel
layout !-->
```

```
<div class="panel-content flex-content-wrap">
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;:&quot;solutions&quot;,&quot;sectiontype&quot;:&
quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
    <span class=""></span>
    Business Solutions
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
<li data-secure-link="none">
```

```

        <a href="/content/www/us/en/artificial-intelligence/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        AI
    </a>
</li>

```

```

<!-- +-----+ -->

```

```

    <li data-secure-link="none">
        <a href="/content/www/us/en/wireless-network/5g-technology-
overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        5G
    </a>
</li>

```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/business/overview.html" class="nav-l4"
data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Business PCs
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/cloud-computing/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Cloud Computing
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/edge-computing/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Edge Computing
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/internet-of-things/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    IOT
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/topics/overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        View all &gt;
      </a>
    </li>
```

```
    </ul>
  </div>
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;:&quot;solutions&quot;,&quot;sectiontype&quot;:&
quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
    <span class=""></span>
    Consumer Solutions
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/creative-pro.html" class="nav-l4"
data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
```



```
        Creators
    </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
        <a href="/content/www/us/en/gaming/serious-gaming.html" class="nav-
l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
            <span class=""></span>
            Gaming
        </a>
    </li>
```

```
    </ul>
</div>
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;:&quot;solutions&quot;,&quot;sectiontype&quot;:&
quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
    <span class=""></span>
    Industry Solutions
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/education/intel-education.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Education
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/financial-services-it/financial-services-
overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Financial Services
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/government/public-sector-solutions-
overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Government & Public Sector
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/healthcare-it/healthcare-overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Healthcare & Life Sciences
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a
href="/content/www/us/en/internet-of-things/industrial-iot/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Industrial
      </a>
    </li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/retail/overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Retail
      </a>
    </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/transportation/overview.html" class="nav-
l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
      Transportation
    </a>
  </li>
```

<!-- +-----+ -->

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/industries/overview.html" class="nav-l4"
data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        View all &gt;
      </a>
    </li>
```

```
    </ul>
  </div>
</div>
```



<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;:&quot;solutions&quot;,&quot;sectiontype&quot;:&
quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
    <span class=""></span>
    Services
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/software/data-center-overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel Data Center Manager
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/foundry/intel-foundry-services.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel Foundry Services
  </a>
</li>
```

```
</ul>
</div>
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;;&quot;solutions&quot;;&quot;sectiontype&quot;;&
quot;subheading&quot;;&quot;linktype&quot;;&quot;level2&quot;}">
    <span class=""></span>
    Resources
  </div>
```

```
<div class="panel-item-content">
```

```
<ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/customer-spotlight/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Customer Spotlight
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/tech-tips-and-tricks/tech-tips.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
      <span class=""></span>
        Technology Tips & Tricks
      </a>
    </li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/partner/showcase/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
      <span class=""></span>
        Partner Showcase
```

</a>  
</li>

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="https://marketplace.intel.com/s/" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Solutions Marketplace
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/company-overview/wonderful.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        People Creating Wonderful
      </a>
    </li>
```

```
    </ul>
  </div>
</div>
```

```
    </div>
  </div>
</div>
</div>
</li>
```

```
<li class="primary-nav-item">
```

```
<button role="button" class="nav-link-primary collapsed" data-  
wap="{&quot;linktype&quot;:&quot;level1&quot;}" id="trigger-menu-3" data-  
parent="#primary-nav" data-target="#menu-3" data-mega-control="l1" aria-  
expanded="false" data-secure-link="none" aria-controls="menu-  
3">Developers</button>
```

```
<div class="mega-panel collapse" id="menu-3" role="region" aria-  
expanded="false" aria-hidden="true">
```

```
<div class="mega-panel-wrap">  
  <div class="mega-panel-body">  
    <div class="mega-body-wrap">
```

```
      <!-- If there is an unique level 2 it will use mega panel  
layout !-->
```

```
<!-- +-----+ -->
```

```
<div class="mega-panel-heading" data-secure-link="none">
```



```
<div class="nav-l2-container">
  <a href="/content/www/us/en/developer/overview.html" class="nav-l2
nav-l2--no-border" data-
wap="{&quot;category&quot;:&quot;developers&quot;,&quot;sectiontype&quot;
:&quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
    <span class=""></span>
    Developers Home
  </a>
</div>
```

```
<div class="panel-content flex-content-wrap">
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/developer/tools/overview.html" class="nav-l3 has-
link" data-wap="{&quot;category&quot;:&quot;developers-
home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class=""></span>
  Development Tools
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a
href="/content/www/us/en/developer/tools/software-catalog/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Software Catalog
      </a>
    </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/download-center/home.html" class="nav-
l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Download Center
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="https://designintools.intel.com/" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Design Tools and Services
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="https://registrationcenter.intel.com/en/" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Software Registration
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/resources-documentation/developer.html"
class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;developers-
home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class=""></span>
  Resources & Documentation
</a>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/developer/learn/overview.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;developers-home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&quot;:&quot;level3&quot;}">
  <span class=""></span>
  Learn
</a>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/developer/topic-technology/overview.html"
class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;developers-home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&quot;:&quot;level3&quot;}">
  <span class=""></span>
  Topics & Technologies
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/developer/topic-technology/artificial-
intelligence/overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Artificial Intelligence
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/developer/topic-technology/client/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Client
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/developer/topic-technology/cloud/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Cloud
  </a>
</li>
```



```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a
href="/content/www/us/en/developer/topic-technology/gamedev/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Game Development
      </a>
    </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/developer/topic-technology/edge-5g/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Edge, IoT & 5G
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/developer/topic-technology/high-
performance-computing/overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    High Performance Computing (HPC)
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/developer/community/overview.html" class="nav-
l3 has-link" data-wap="{&quot;category&quot;;&quot;developers-
home&quot;;&quot;sectiontype&quot;;&quot;subheading&quot;;&quot;linktype&
quot;;&quot;level3&quot;}">
  <span class=""></span>
  Communities & Events
</a>
```

```
</div>
```

<!-- +-----+ -->

<div class="panel-item" data-secure-link="none">

<a href="/content/www/us/en/developer/get-help/overview.html" class="nav-l3  
has-link" data-wap="{&quot;category&quot;:&quot;developers-  
home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&  
quot;:&quot;level3&quot;}">  
    <span class=""></span>  
    Get Help  
</a>

</div>

<!-- +-----+ -->

<div class="panel-item" data-secure-link="none">

```
<a href="/content/www/us/en/developer/programs/overview.html" class="nav-l3
has-link" data-wap="{&quot;category&quot;:&quot;developers-
home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class=""></span>
  Developer Programs
</a>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</li>
```

```
<li class="primary-nav-item">
  <button role="button" class="nav-link-primary collapsed" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" id="trigger-menu-4" data-
parent="#primary-nav" data-target="#menu-4" data-mega-control="l1" aria-
expanded="false" data-secure-link="none"
aria-controls="menu-4">Partners</button>
```

```
<div class="mega-panel collapse" id="menu-4" role="region" aria-  
expanded="false" aria-hidden="true">
```

```
<div class="mega-panel-wrap">  
  <div class="mega-panel-body">  
    <div class="mega-body-wrap">
```

```
      <!-- If there is an unique level 2 it will use mega panel  
layout !-->
```

```
<!-- +-----+ -->
```

```
<div class="mega-panel-heading" data-secure-link="none">
```

```
<div class="panel-content flex-content-wrap">
```

<!-- +-----+ -->

<div class="panel-item" data-secure-link="none">

<a href="/content/www/us/en/partner-alliance/overview.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub heading&quot;,&quot;linktype&quot;:&quot;level3&quot;}">  
    <span class=""></span>  
    Intel® Partner Alliance  
</a>

<div class="panel-item-content">  
    <ul class="panel-links nav-l4-list list-unstyled">

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/partner-alliance/membership/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    About Membership
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/my-intel/partner-login.html" class="nav-l4"
data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Already a Member? Login
  </a>
</li>
```



```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/partner-alliance/marketplace/submit-a-
solution.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Submit a Solution
      </a>
    </li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/partner-alliance/help/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Get Help
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="https://marketplace.intel.com/s/" class="nav-l3 has-link" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level3&quot;}">
  <span class=""></span>
```

Intel® Solutions Marketplace  
</a>

<div class="panel-item-content">  
    <ul class="panel-links nav-l4-list list-unstyled">

<!-- +-----+ -->

    <li data-secure-link="none">  
        <a href="https://marketplace.intel.com/s/offerings-by-category?  
language=en\_US" class="nav-l4" data-  
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub  
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">  
            <span class=""></span>  
            Offerings by Category  
        </a>  
    </li>

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="https://marketplace.intel.com/s/partner-directory?
language=en_US" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Partner Directory
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/secure/retail/partner-solutions/overview.html"
class="nav-l3 has-link" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level3&quot;}">
  <span class=""></span>
  Retail Partner Solutions
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
  <li data-secure-link="none">
    <a href="https://supporttickets.intel.com/supportrequest?lang=en-
US&amp;productId=211841%3A11430" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
      <span class=""></span>
      Retail Support
    </a>
  </li>
```

```
</ul>
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</li>
```

```
<!-- Start Mega More+ Nav Item -->
```

```
<li class="primary-nav-item primary-nav-item-more hidden" data-mega-control-
more-item="" style="">
```

```
  <button data-wap="{&quot;linktype&quot;:&quot;level1&quot;}"
role="button" class="nav-link-primary collapsed" id="trigger-mega-more-panel"
data-target="#mega-more-panel" data-mega-control="more-l1" aria-
expanded="false" aria-controls="mega-more-panel">More +
```

```
  </button>
```

```
  <div class="mega-panel mega-more-panel collapse" id="mega-more-panel"
role="region" aria-expanded="false" aria-hidden="true" aria-
labelledby="trigger-mega-more-panel">
```

```
    <div class="mega-panel-wrap">
```

```
      <div class="mega-panel-body">
```

```
        <div class="panel-content">
```

```
          <ol class="mega-navbar mega-navbar-more-list">
```

```
            </ol>
```

```
          </div>
```

```
        </div>
```

```
      </div>
```

```
    </div>
```

```
</li>
```

```
<script type="text/javascript">
  /**
   * This chunk of code is used to bypass Akamai cache - since this goes to the
   globalNav that can be cleared independently
   */
  var globalMenuConfigs = {
    idpUrl:
"https://sfederation.intel.com/federation2/sp/WebExperienceManagementSolutio
nonAEMforIntel/d3d3LmludGVsLmNvbQ%3D%3D"
  }
</script>
```

```
<!-- End Mega More+ Nav Item -->
</ol>
```

```
      </div>
    </div>
  </div>
```

```
<!-- START MOBLE TOGGLE buttons -->
<div class="navbar-right">
```

```
  <!-- START: NON-signed in panel -->
```

```

<span id="not-logged-in-scenario" class="">
  <button type="button" title="Sign In" class="nav-link-icon nav-link-icon-
toggle collapsed" data-wap="{&quot;linktype&quot;;&quot;level1&quot;}" data-
target="#panel-signin" aria-expanded="false" aria-controls="panel-signin" data-
mega-control="signin">
    <span class="sr-only">Sign In</span>
    <span class="fa-intel-user-o icon-toggle-off"></span>
    <span class="fa-intel-user icon-toggle-on"></span>
  </button>

  <div class="mega-panel panel-layout-signin collapse" id="panel-signin">
  <div class="mega-panel-wrap">
    <div class="mega-panel-body">
      <div class="panel-content flex-content-wrap">
        <div class="panel-item with-sep-line panel-col-1of2">
          <form id="igm-form-signin"
action="https://www.intel.com/libs/apps/intel/login.json/securitytoken"
method="POST" name="igm-form-signin" class="intel-form" novalidate="">
            <h3 class="section-title">Sign In</h3>
            <div class="flex-layout-md">
              <div class="form-group flex-col-md vertical-gutter">
                <label for="username" class="component" data-
component="wa_skip_track" data-component-id="1">
                  <span class="sr-only">Username</span>
                  <input class="form-control form-input" aria-
describedby="uname-error" name="userid" id="username"
placeholder="Username" required="">
                </label>
                <div class="error validation-messages " id="uname-error">
                  <div class="rule broken">Your username is
missing</div>
                </div>
              </div>
              <div class="form-group flex-col-md vertical-gutter">
                <label for="password" class="component" data-
component="wa_skip_track" data-component-id="1">

```



```

        <span class="sr-only">Password</span>
        <input type="password" class="form-control form-input"
aria-describedby="pwd-error" id="password" name="password"
placeholder="Password" required="" autocomplete="off">
    </label>
    <div class="error validation-messages " id="pwd-error">
        <div class="rule broken">Your password is
missing</div>
    </div>
</div>
</div>
</div>

<p class="vertical-gutter">By signing in, you agree to our <a
href="/content/www/us/en/legal/terms-of-use.html">Terms of Service</a>.</p>

<div class="flex-layout-md flex-align-center vertical-gutter">
    <input type="hidden" name="callBack"
id="callBackSimplify">
    <input type="hidden" name="queryParam" id="queryParam"
value="https://www.intel.com/content/www/us/en/docs/programmable/683865/
current/creating-ips-file.html">
    <input type="submit" class="btn btn-primary blue-btn-white-
text" value="Sign In" data-wap="{&quot;linktype&quot;:&quot;sign-in&quot;}">
    <label for="cbRememberMe" class="has-switch-input">
        <input id="cbRememberMe" name="rememberme"
type="checkbox" value="true">
        <span class="check-box"></span>
        <span>Remember me</span>
    </label>
</div>

<p class="vertical-gutter">
    Forgot your Intel
    <a
href="https://www.intel.com/content/www/us/en/my-intel/forgot-
userid.html">username</a>
    or
    <a
href="https://www.intel.com/content/www/us/en/my-intel/forgot-
password.html">password</a>?
</p>
<p class="vertical-gutter">
    <a href="/content/www/us/en/support/topics/sign-in-
faq.html">Frequently Asked Questions</a>
</p>
</form>
<div class="alert alert-danger" id="login-error" role="alert"></div>
</div>
<div class="panel-item panel-col-variant">
    <div class="padding-wrap valign-to-input">
        <p class="vertical-gutter" style="display: none;">Do you work
for Intel? <a data-wap_ref="sign-in-general" href="#"
onclick="intel.signinsimplify.geturl('https://myapps.microsoft.com/signin/
Azure_To_SEPMP_Bridge_PR_IAP_7086/b5335fcd-30d1-4825-8a79-

```

```
4234279c8301?tenantId=46c98d88-e344-4ed4-8496-4ed7712e255d&RelayState=')">
```

```
    Sign in here</a>.  
</p>
```

```
    <p class="vertical-gutter">Don't have an Intel account?  
      <a data-wap_ref="sign-up-general" href="#"  
onclick="intel.signinHeaderSimplify.doRedirect('/forms/basic-intel-  
registration.html')"> Sign up here </a>  
      for a basic account.  
    </p>
```

```
  </div>  
</div>  
</div>  
</div>  
</div>  
</div>  
</span>
```

```
<iframe id="frameSigninSimplify" tabindex="-1" title="My Intel Sign in" aria-  
hidden="true" name="frameSigninSimplify"  
src="/etc.clientlibs/settings/wcm/designs/intel/clientlibs/pages/commons-page/  
resources/html/idamFormStaticSimplify.html" style="display:none;"></iframe>
```

```
<script>
```

```
var intel = intel || {};  
intel.signinsimplifyConfig = {  
  locale: "",  
  messages: {  
    InvalidCredential: 'The username or password you entered was invalid.',  
    InvalidField: 'The username or password you entered was invalid.',  
    AccountDisabled: 'For security reasons, your account has been disabled.  
For help, <a href="#" class="contactLink new-tab-link" target="_blank" rel="noopener noreferrer" >contact us</a>.',  
    AccountLocked: 'Your account has been locked. For help, please read the  
<a href="#" class="faqsLink new-tab-link" target="_blank" rel="noopener noreferrer" >Sign In FAQ</a>.',  
    UserNotFound: 'The username or password you entered was invalid.',  
    Unknown: 'An unexpected error occurred. Try it again. For help, use the  
contact or support options below.',  
    PasswordExpired: 'Your password is expired. Please change your  
password.',  
    LoginAssistLink: 'https://signin.intel.com/ContactUs.aspx',  
    faqsLink: '/content/www/my-intel/sign-in-help.html'  
  },  
  nameField: 'Username',  
  passField: 'Password',  
  signinUrl: '/libs/apps/intel/login.json/securitytoken',  
  isPopUp: true,  

```

```

        responseHref:
'https://www.intel.com/content/www/us/en/docs/programmable/683865/current/creating-ips-file.html?' + window.location.hash,
        sslDomainUrl: 'www.intel.com',
        loginUrl: 'https://welcome.intel.com/login.aspx?appid=258&qlogin=true',
        ssoUri: 'https://federatesso.intel.com',
        logoutUrl: 'https://welcome.intel.com/logout.aspx',
        logoutHref:
'https://signin.intel.com/Logout?RedirectURL=https://www.intel.com/content/www/us/en/docs/programmable/683865/current/creating-ips-file' + '.html',
        logoutGHFHref: 'https://signin.intel.com/Logout?RedirectURL=',
        loginErrorID: '#login-error',
        usernameID: '#username',
        remembermeID: '#cbRememberMe',
        formID: '#igm-form-signin',
        unameErrorID: '#uname-error',
        passID: '#password',
        passError: '#pwd-error',
        changePasswordUrl: '/content/www/us/en/my-intel/change-password.html',
        emailVerificationUrl: '/content/www/us/en/my-intel/email-verification.external.html',
        aboutToExpireEmailUrl: '/content/www/us/en/my-intel/email-verification.html',
        renewalUrl: '/content/www/us/en/secure/technology-provider/forms/renew-technology-provider-membership.html',
        limitedUrl: '/content/www/us/en/resellers/limited-status-secondary.html',
        isaPRMDashBoardURL: '/content/www/us/en/secure/partner/solutions-alliance/overview.html',
        itpPRMDashBoardURL: '/content/www/us/en/secure/partner/technology-provider/iot/overview.html',
        itpisaPRMDashBoardURL:
'/content/www/us/en/secure/partner/iot-itp-isa/overview.html',
        isaRenewalURL: '/content/www/us/en/secure/partner/forms/solutions-alliance-renewal.html',
        primaryPostLaunchURL: 'https://partner.intel.com/s/post-launch-primary',
        nonPrimaryPostLaunchURL: 'https://partner.intel.com/s/post-launch-non-primary',
        idpUrl:
'https://sfederation.intel.com/federation2/sp/WebExperienceManagementSolutiononAEMforIntel/d3d3LmludGVsLmNvbQ%3D%3D'
    };

```

```

    if (!isLoggedIn && ((document.domain.indexOf("thailand") == -1 && document.domain.endsWith(".intel.com"))) || document.getElementById("recode50header") != null) && (navigator != null && navigator.userAgent.indexOf("CloudManagerTest") == -1)) {
        try {
            var xmlhttp = new XMLHttpRequest();
            xmlhttp.open('HEAD', 'https://sfederation.intel.com/federation/status.asp', false);
            xmlhttp.withCredentials="true";
            xmlhttp.send();
            if (200 == xmlhttp.status) {
                var currentUrl = window.location.href;

```

```
var cookiename = "IGHFtarget";
var samlcookieValue = cookiename + "=" +
encodeURIComponent(currentUrl) + ";secure;path=/;domain=.intel.com";
document.cookie= samlcookieValue;
window.location.href =
'https://sfederation.intel.com/federation2/sp/WebExperienceManagementSolution
onAEMforIntel/d3d3LmludGVsLmNvbQ%3D%3D';
    }
    } catch(error) {
    }
}

</script>
<script defer="" src="/content/dam/www/global/network.js"
type="text/javascript"></script>
```

```

<script id="myinteldrpdwn-template" type="text/x-handlebars-template">
  <section class="myintel-tools-content" role="region"
    aria-label="My Intel">

    <div class="panel-header force-background solid brand-very-dark-gray my-
intel-menu">
      <button type="button" class="icon close pull-right" data-igm-search-
toggle="" aria-label="Close"
        tabindex="0" data-wap="" data-wap_ref="myintel-navmenu-
closing">
        <span></span>
      </button>
      <ul class="nav nav-tabs component">

```

```

        <li role="presentation" class="active" data-step='1' data-title='My
Intel Dashboard and My Tools' data-intro='<p>Click here to access the My Intel
Dashboard from any Intel.com page. From here you can also access your
Subscriptions page, as well as your personalized list of tools.</p>'>
          <a href="#my-intel" role="tab" tabindex="0">My Intel<span
            class="fa fa-user"></span></a>
        </li>
      </ul>
    </div>

```

```

<div class="my-intel-panel-body tab-content">

  <div role="tabpanel" class="tab-pane fade in active" id="my-intel">
    <ul class="myintel-links">
      {{#each myintelpagelinks}}
        <li data-agsrole="{{{agsrole}}}"
          data-blacklistedagsrole="{{{blacklistedagsgroupname}}}"
          data-isinternal="{{{displayOnlyInternal}}}"
          data-isexternal="{{{displayOnlyExternal}}}"
          class="{{{class}}}">
          <a target="{{{target}}}"
            href="{{{href}}}" tabindex="0">{{{label}}}</a>
        </li>
      </ul>
    </div>

```

```

        </li>
        {{/each}}
    </ul>
    <div class="tools-pane component" data-component="myintel-tools"
data-component-id="1">
        <h5 class="my-intel-tools">My Tools</h5>

        <ul class="myintel-links">
            {{#each mytoollinks}}
            <li class="myintellink"
                data-isinternal="{{{displayOnlyInternal}}}"
                data-isexternal="{{{displayOnlyExternal}}}">
                <h3 style="display:none;">{{{agsgroupname}}}</h3>
                <h4
style="display:none;">{{{blacklistedagsgroupname}}}</h4>
                <a tabindex="0" href="{{{linkurl}}}" target="_blank"
rel="noopener noreferrer" title="">{{{linktext}}}</a>
                {{#if tooltip}}
                <a class="fa fa-help-circled" tabindex="0" data-
toggle="tooltip" data-html="true"
                    data-title="{{{tooltip}}}" data-placement="bottom" data-
wap_ref="tooltip:{{{linktext}}}"><span
class="sr-only">{{{tooltip}}}</span></a>
                {{/if}}
            </li>
            {{/each}}
        </ul>
    </div>
</div>
</section>
</script>

```

```

<span id="logged-in-scenario" class="hidden">

```

```

<button type="button" title="My Intel" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" class="nav-link-icon nav-
link-icon-toggle collapsed" data-target="#panel-signedin" aria-expanded="false"
aria-controls="panel-signedin" data-mega-control="signedin">
    <span class="sr-only">My Intel</span>
    <span class="fa intel-user-checked-o icon-toggle-off"></span>
    <span class="fa intel-user-checked icon-toggle-on"></span>
</button>

```

```

<div class="mega-panel panel-layout-signed-in collapse" id="panel-signedin">
    <div class="mega-panel-wrap">
        <div class="mega-panel-body">
            <div class="panel-content flex-content-wrap">

                <!-- MyIntel Section -->
                <!-- ----- -->
                <div class="panel-item hidden" id="myIntelPageLinks">

```

```

        <a id="myIntelPageLinksHeader" class="nav-l3 has-border has-
link"></a> <!-- {{#if heading.onState}} selected{{{/if}} {{#if
heading.onStateParent}} selected-parent{{{/if}} -->
        <div class="panel-item-content">
            <ul id="myIntelPageLinksItem" class="panel-links nav-l4-list
list-unstyled">

                </ul>
            </div>
        </div>

<!-- My Tools Section -->
<!-- ----- -->
<div class="panel-item col-span-2" id="myIntelTools">

    <div class="nav-l3">
        My Tools
    </div>

    <div class="panel-item-content">
        <!--
            Note: right now this panel (myTools) has only one column/ul
            if more columns are needed, remove below's 'w-auto' class
        -->
        <ul class="panel-links nav-l4-list list-unstyled w-auto"
id="mytools-ul">

            <!-- this 'li' will be used as the template to populate this
section from the js -->
            <li class="hidden">
                <a class="nav-l4"></a>

                <button class="btn-tooltip-trigger hidden" data-
toggle="tooltip" data-placement="bottom" title="" data-original-title="">
                    <span>?</span>
                </button>
            </li>
        </ul>
    </div>
</div>

</div>

    <div class="item-actions">
        <button type="button" class="btn btn-primary"
data-sso-uri="https://federatesso.intel.com" data-logout-uri="" data-
wap="{&quot;linktype&quot;:&quot;logout&quot;}"
onclick="intel.signinsimplify.signOut()">Sign Out</button>
    </div>
</div>
</div>
</div>

```

</span>

```
<button type="button" title="Language Selector" data-  
wap="{&quot;linktype&quot;:&quot;level1&quot;}" class="nav-link-icon nav-  
link-icon-toggle collapsed" data-target="#panel-language-  
selector" aria-expanded="false" aria-controls="panel-language-  
selector" data-mega-control="language-selector">  
  <span class="fa-intel-globe-o icon-toggle-off"></span>  
  <span class="fa-intel-globe icon-toggle-on"></span>  
  <span class="nav-link-icon-label">USA (English)</span>  
</button>
```

```
<div class="mega-panel panel-layout-language collapse" id="panel-language-  
selector" aria-expanded="false" aria-selected="false" aria-collapsed="true">  
  <div class="mega-panel-wrap">  
    <div class="mega-panel-body">  
      <div class="mega-panel-heading">  
        <h2 class="nav-l2">  
          Select Your Region  
        </h2>  
      </div>  
      <div class="panel-content flex-content-wrap">  
  
        <div class="panel-item col-span-2 col-span-2-md">  
          <!-- region.countryName is actually region name -->  
          <h3 class="nav-l3 no-border">Asia Pacific</h3>  
          <ul class="list-unstyled panel-links nav-l4-list columns-2">
```

```
    <li class="lang-option">
```



```

        <a class="nav-l4" data-locale="en_xa"
href="https://www.intel.sg/content/www/xa/en/homepage.html?
countrylabel=Asia Pacific">
            Asia Pacific (English)
        </a>
    </li>

```

```

    <li class="lang-option">

```

```

        <a class="nav-l4" data-locale="en_au"
href="https://www.intel.com.au/content/www/au/en/homepage.html">
            Australia (English)
        </a>
    </li>

```

```

    <li class="lang-option">

```

```

        <a class="nav-l4" data-locale="en_in"
href="https://www.intel.in/content/www/in/en/homepage.html">
            India (English)
        </a>
    </li>

```

```

    <li class="lang-option">

```

```
        <a class="nav-l4" data-locale="id_id"
href="https://www.intel.co.id/content/www/id/id/homepage.html">
            Indonesia (Bahasa Indonesia)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="ja_jp"
href="https://www.intel.co.jp/content/www/jp/ja/docs/programmable/683865/
current/creating-ips-file.html">
            Japan (日本語)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="ko_kr"
href="https://www.intel.co.kr/content/www/kr/ko/homepage.html">
            Korea (한국어)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="zh_cn"
href="https://www.intel.cn/content/www/cn/zh/docs/programmable/683865/
current/creating-ips-file.html">
```

```
            Mainland China (大陸)
```

```
        </a>
    </li>
```

```
    <li class="lang-option">
```

```
        <a class="nav-l4" data-locale="zh_tw"
href="https://www.intel.com.tw/content/www/tw/zh/homepage.html">
```

```
            Taiwan (台灣)
```

```
        </a>
    </li>
```

```
    <li class="lang-option">
```

```
        <a class="nav-l4" data-locale="th_th"
href="https://www.thailand.intel.com/content/www/th/th/homepage.html">
```

```
            Thailand (泰國)
```

```
        </a>
    </li>
```

```
    <li class="lang-option">
```

```
        <a class="nav-l4" data-locale="vi_vn"
href="https://www.intel.vn/content/www/vn/vi/homepage.html">
```

```

        Vietnam (Tiếng Việt)
    </a>
</li>

</ul>
</div>

<div class="panel-item col-span-2 col-span-2-md">
    <!-- region.countryName is actually region name -->
    <h3 class="nav-l3 no-border">Europe</h3>
    <ul class="list-unstyled panel-links nav-l4-list columns-2">
```

```

        <li class="lang-option">
```

```

            <a class="nav-l4" data-locale="fr_fr"
href="https://www.intel.fr/content/www/fr/fr/homepage.html">
                France (Français)
            </a>
        </li>
```

```

        <li class="lang-option">
```

```

            <a class="nav-l4" data-locale="de_de"
href="https://www.intel.de/content/www/de/de/homepage.html">
                Germany (Deutsch)
            </a>
        </li>
```

```

        <li class="lang-option">
```

```
        <a class="nav-l4" data-locale="en_ie"
href="https://www.intel.ie/content/www/ie/en/homepage.html">
            Ireland (English)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="it_it"
href="https://www.intel.it/content/www/it/it/homepage.html">
            Italy (Italiano)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="pl_pl"
href="https://www.intel.pl/content/www/pl/pl/homepage.html">
            Poland (Polski)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="ru_ru"
href="https://www.intel.ru/content/www/ru/ru/homepage.html">
            Russia (Русский)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="es_es"
href="https://www.intel.es/content/www/es/es/homepage.html">
            Spain (Español)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="tr_tr"
href="https://www.intel.com.tr/content/www/tr/tr/homepage.html">
            Turkey (Türkçe)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="en_uk"
href="https://www.intel.co.uk/content/www/uk/en/homepage.html">
            United Kingdom (English)
```

```
</a>
</li>
```

```
</ul>
</div>
```

```
<div class="panel-item">
  <!-- region.countryName is actually region name -->
  <h3 class="nav-l3 no-border">Latin America</h3>
  <ul class="list-unstyled panel-links nav-l4-list">
```

```
<li class="lang-option">
```

```
      <a class="nav-l4" data-locale="es_xl"
href="https://www.intel.la/content/www/xl/es/homepage.html?
countrylabel=Argentina">
        Argentina (Español)
      </a>
    </li>
```

```
<li class="lang-option">
```

```
      <a class="nav-l4" data-locale="pt_br"
href="https://www.intel.com.br/content/www/br/pt/homepage.html">
        Brazil (Português)
      </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="es_xl"
href="https://www.intel.la/content/www/xl/es/homepage.html?
countrylabel=Chile">
```

```
        Chile (Español)
```

```
    </a>
```

```
</li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="es_xl"
href="https://www.intel.la/content/www/xl/es/homepage.html?
countrylabel=Colombia">
```

```
        Colombia (Español)
```

```
    </a>
```

```
</li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="es_xl"
href="https://www.intel.la/content/www/xl/es/homepage.html?
countrylabel=Latin America">
```

```
        Latin America (Español)
```

```
    </a>
```

```
</li>
```

```
<li class="lang-option">
```



```
        <a class="nav-l4" data-locale="es_xl"
href="https://www.intel.la/content/www/xl/es/homepage.html?
countrylabel=Mexico">
```

```
        Mexico (Español)
```

```
    </a>
</li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="es_xl"
href="https://www.intel.la/content/www/xl/es/homepage.html?
countrylabel=Peru">
```

```
        Peru (Español)
```

```
    </a>
</li>
```

```
</ul>
</div>
```

```
<div class="panel-item">
```

```
    <!-- region.countryName is actually region name -->
```

```
    <h3 class="nav-l3 no-border">Middle East/Africa</h3>
```

```
    <ul class="list-unstyled panel-links nav-l4-list">
```

```
        <li class="lang-option">
```

```
        <a class="nav-l4" data-locale="he_il"
href="https://www.intel.co.il/content/www/il/he/homepage.html">
        Israel (עברית)
```

```
    </a>
</li>
```

```
</ul>
```

</div>

<div class="panel-item">

<!-- region.countryName is actually region name -->

<h3 class="nav-l3 no-border">North America</h3>

<ul class="list-unstyled panel-links nav-l4-list">

<li class="selected lang-option">

<a class="nav-l4" data-locale="en\_us"  
href="https://www.intel.com/content/www/us/en/homepage.html">  
United States (English)  
</a>  
</li>

<li class="lang-option">

<a class="nav-l4" data-locale="en\_ca"  
href="https://www.intel.ca/content/www/ca/en/homepage.html">  
Canada (English)  
</a>  
</li>

<li class="lang-option">

<a class="nav-l4" data-locale="fr\_ca"  
href="https://www.intel.ca/content/www/ca/fr/homepage.html">

Canada (Français)

</a>

</li>

</ul>

</div>

</div>

</div>

</div>

</div>

<!-- END: NON-sign in panel -->

```
<button type="button" title="Search intel.com" class="nav-link-icon toggle-
search collapsed" data-target="#simplify-search" aria-expanded="false" aria-
controls="simplify-search" data-mega-control="global-search">
```

```
<span class="sr-only">Toggle Search</span>
```

```
<span class="fa-global-search"></span>
```

```
</button>
```

```
<div class="mega-panel mega-search-panel collapse" id="simplify-search"
aria-expanded="false" aria-selected="false" aria-collapsed="true" document-
height="true">
```

```
<div class="mega-panel-wrap">
```

```
<div class="mega-panel-body">
```

```
<div class="panel-content">
```

```
<div class="search-component search-component" data-igm-
search-content="">
```

```
<form class="mega-search-form search item" data-igm-search-
control="" name="hpsform-new" id="hpsform-new"
action="/content/www/us/en/search.html" role="search" onsubmit="return
inputSearch()">
```

```
<button type="submit" class="btn-mega-search icon" aria-
label="Search" tabindex="-1">
```

```
<span class="sr-only">Search</span>
```

```
<span class="fa-global-search"></span>
```

```
</button>
```

```
<label for="mobile-search">
```

```
<span class="sr-only">&lt;</span>
```

```
<input id="toplevelcategory" name="toplevelcategory"
type="hidden" value="none">
```

```
<input id="query" name="query" type="hidden"
value="">
```

```

        <input data-tabindex="1" class="form-control" data-
search-input="" id="mobile-search" name="keyword" type="text" data-igm-
search-input="" title="Search" autocomplete="off" data-target-result="#igm-
search-result" aria-controls="mega-results-overlay" aria-label="Search
Intel.com" placeholder="Search Intel.com">
        </label>

```

```

        <button type="button" id="cls-btn-advanced" class="btn-
mega-close fa-cancel-1 hide-flyout" aria-label="Clear Search Term" data-clear-
input="clear-input">

```

```

        <span class="sr-
only">Close Search Panel</span>

```

```

        </button>

```

```

        <button type="button" id="advanced-btn" class="btn-
advance-filter fa-sliders hide-flyout" aria-label="Advanced Search Panel" data-
mega-advanced-search="advanced-search">

```

```

        <span class="sr-only">Advanced Search</span>
        </button>

```

```

    </form>

```

```

    <!--

```

```

        'hidden' class is conditionally removed on load @ intel.search-
dropdown.js

```

```

    -->

```

```

    <div class="results-overlay mega-results-overlay search-quick-
links" aria-live="off" id="mega-results-overlay" data-
component="wa_skip_track">

```

```

        <div class="mega-close-container">

```

```

            <button aria-
label="Close search panel" class="btn-icon no-style close-result-toggle flyout-
close" data-mega-close="global-search">

```

```

                close

```

```

            </button>

```

```

        </div>

```

```

    <!-- Search Result Typeahead -->

```

```

    <div class="results-typeahead collapse" id="igm-search-
result" data-igm-search-results="">

```

```

        <div class="overlay-content">

```

```

            <!--<h3>Top Results </h3>-->

```

```

            <!-- added content-quick-search class -->

```

```

            <div class="content-quick-search">

```

```

                </div>

```

```

        </div>

```

```

        <div class="search-info">

```

```

            <a href="javascript:void();" class="login-toggle" data-
activate-mega-control="signin">

```

```

                Sign In</a> to access restricted content

```

```

        </div>

```

```

        </div>
        <!-- Recent Searches: 1) display default search info if no search
terms is available -->
        <!-- Recent Searches: 2) display recenter terms when available
and hide default search info -->
        <div class="results-recent collapse" data-igm-search-
related="">
            <div>
                <!-- default search info -->
                <div class="content-search-block content-search-info">
                    <h3>Using Intel.com Search</h3>
                    <p>You can easily search the entire Intel.com site in
several ways.</p>
                    <ul>
                        <li>
                            Brand Name:
                            <strong>
                                Core i9
                            </strong>
                        </li>
                        <li>
                            Document Number:
                            <strong>
                                123456
                            </strong>
                        </li>
                        <li>
                            Code Name:
                            <strong>
                                Alder Lake
                            </strong>
                        </li>
                        <li>
                            Special Operators:
                            <strong>
                                "Ice Lake", Ice AND Lake, Ice OR Lake, Ice*
                            </strong>
                        </li>
                    </ul>
                </div>
                <!-- quick links is always visible on the recents overlay -->
                <div class="content-search-block content-quick-links">
                    <h3>Quick Links</h3>
                    <p>You can also try the quick links below to see results
for most popular searches.</p>
                    <ul>
                        <!--<li>
                            <a class="quick-link" rel="noopener noreferrer"
href=https://ark.intel.com?
wapkw=quicklink:product-specifications>
                                Product Specifications
                            </a>
                        </li>-->
                        <li>

```

```

<a class="quick-link" rel="noopener noreferrer"
href="https://www.intel.com/content/www/us/en/products/overview.html?
wapkw=quicklink:products">
    Product Information
</a>
</li>
<li><a class="quick-link" rel="noopener noreferrer"
href="https://www.intel.com/content/www/us/en/support.html?
wapkw=quicklink:support">
    Support
</a>
</li>
<li>
<a class="quick-link" rel="noopener noreferrer"
href="https://downloadcenter.intel.com?wapkw=quicklink:download-center">
    Drivers & Software
</a>
</li>
</ul>
</div>
<!-- recent search terms -->
<div class="results-overlay results-recent results
component content-search-block content-recent" data-
component="wa_skip_track" data-component-id="1">
    <div class="overlay-content recent-searches-terms
hidden">
        <h3>Recent Searches</h3>
    </div>
</div>
</div>
<div class="search-info">
    <a href="javascript:void();" class="login-toggle" data-
activate-mega-control="signin">
        Sign In</a> to access restricted content
    </div>
</div>

    <div class="results-advanced collapse" data-igm-advanced-
search="">
        <div
class="overlay-content">
            <!-- default search info -->

            <div class="content-search-block content-search-info component" data-
component="wa_skip_track" data-component-id="1">

                <h3>Advanced Search</h3>

                <div class="controls-wrapper">

                    <div class="controls">

                        <div class="input-group select-control">

```

```

        <select class="documentation-card-version-select"
name="find-results" id="find-results">

        <option value="All of these terms"
selected="">All of these terms</option>

        <option value="Any of these terms">Any of
these terms</option>

        <option value="Exact term only">Exact term
only</option>

        </select>

        <label class="select-label" for="find-results">Find
results with</label>

    </div>

```

```

    <div class="input-group select-control">
        <select class="selectAdvanced"
name="show-results-from" id="show-results-from">
            <option value="allResults"
selected="" aria-label="all Results">
                All Results
            </option>
            <option value="Products" aria-
label="Products">
                Product Information
            </option>
            <option value="Support">
                Support
            </option>
            <option value="Downloads">
                Drivers & Software
            </option>
            <option value="Developers">
                Documentation & Resources
            </option>
            <!-- <option
value="Solutions">Solutions</option>-->
            <option value="Partners">
                Partners
            </option>
            <option value="forums">
                Communities
            </option>
            <option value="Corporate">
                Corporate
            </option>
        </select>
    </div>

```



```
<label class="select-label" for="show-results-  
from">Show results from</label>  
  
</div>  
  
<div class="controls">  
    <h3>Only search in</h3>  
    <div class="input-group" aria-label="Only Search In">  
        <label for="search_title">  
            <input name="search_title" id="search_title"  
type="checkbox">  
                Title</label>  
  
        <label for="search_description">  
            <input name="search_description"  
id="search_description" type="checkbox">  
                Description</label>  
  
        <label for="search_id">  
            <input name="search_id" id="search_id"  
type="checkbox">Content ID</label>  
    </div>  
  
    <button role="button" type="button" class="btn btn-  
primary" id="advanced-search-submit" data-wap="" data-wap-ref="search-  
button">  
        Search  
    </button>  
</div>  
</div>  
</div>
```

<a

href="javascript:void();" class="login-toggle" data-activate-mega-control="signin">Sign in</a> to access

restricted content.

</div>  
</div>

</div>  
</div>  
</div>  
</div>  
</div>  
</div>

<script type="text/javascript">

```
var global_config = {
  "icsUrl": "https://supporttickets.intel.com/services/oauth2/authorize?
response_type=token&client_id=3MVG9QDx8IX8nP5Rh0X3B7gohGtUh8sjFQ8Tw_
U8sS9_PoVrupDFwZ_nwLcze2n64IGBbGchyUb7_9W8n8pAV&redirect_uri=https
%3A%2F%2Fwww.intel.com%2Fcontent%2Fwww%2Fus%2Fen%2Fsecure%2Fmy-
intel%2Ftoken.html",
  "ipsUrl": "https://premiersupport.intel.com/IPs/services/oauth2/authorize?
response_type=token&client_id=3MVG9xOCXq4ID1uEa5F2ICYAp6mmKvTMIKbMI
rsMKShY2oOqs1ETvPRjwmhoPivHd9_U53EzmiyYxn3nVpA9J&redirect_uri=https
%3A%2F%2Fwww.intel.com%2Fcontent%2Fwww%2Fus%2Fen%2Fsecure%2Fmy-
intel%2Ftoken.html"
};
```

```
function inputSearch() {
  if (globalSearch.advancedSearchFlag == 'true') {
    var findResults = $("#find-results").val();
    var showResults = $("#show-results-from").val();
    var titleIsChecked = $("#search_title").is(":checked");
    var descriptionIsChecked = $("#search_description").is(":checked");
    var idIsChecked = $("#search_id").is(":checked");
    var searchInputValue = $("#mobile-search").val();

    if (findResults != 'All of these terms' || showResults != "allResults" ||
    titleIsChecked || descriptionIsChecked || idIsChecked) {
      if (searchInputValue) {
        return advancedSearch();
      }
      else {
        return INTEL_TYPE_AHEAD.onSubmitHps('Search',
'/content/www/us/en', 'en_US');
      }
    }
  }
  else {
    return INTEL_TYPE_AHEAD.onSubmitHps('Search', '/content/www/us/en',
'en_US');
  }
}
```

```

    }
    return INTEL_TYPE_AHEAD.onSubmitHps('Search', '/content/www/us/en',
'en_US');
}

var globalSearch = globalSearch || {};
globalSearch = {
  sharePointSearchPromote:true,
  searchProvider: 'coveo',
  baseSearchQuery: 'localecode:"en_US" NOT generic1:"false" ',
  langRootPath: '/content/www/us/en',
  headingTxt: 'Best Match',
  locale: 'en_US',
  typeAheadUrl: 'http://search.intel.com/SearchLookup/DataProvider.ashx',
  bestMatchUrl:
'https://platform.cloud.coveo.com/rest/search/v2/querySuggest',
  searchRealm: 'Default',
  bestMatchQ1: 'NAR',
  bestMatchQ2: 'en',
  bestMatchQ11: 'sptitle,description,url,thumbnailurl,reimaginerootlevel',
  progId: '',
  useEMTTags: true,
  defaultPage: 'search.html',
  ighfToken: 'xx6e698e8b-65ad-446c-9030-666d0ec92d15',
  searchHub: 'enterpriseSearch',
  newNavRedesign: true,
  advancedSearchFlag : 'true',
  gtvLabels: {
    suggested: "",
    products: "Product Information",
    support: "Support",
    developers: "Developers",
    drivers: "Drivers",
    forums: "Forums",
    specifications: "Specifications",
    download: "",
    searchesRelatedTo: "",
    search: "Search Intel.com",
    inLabel: "in",
    searchSupport: "Search Intel® Support",
    intelcom: "",
    forLabel: "for",
    allResults: "All Results",
    show: "Show",
    results: "Results"
  },
  mobileResults: "5",
  laptopResults: "10",
  EDCProgramIdentifier: "false"
};
</script>
</div>

```

```
        <!-- END MOBILE TOGGLE buttons -->
    </div>
</nav>
</header>
</div>
```

```
<div id="secondary-nav-1" class="component secondary-nav" data-  
component="subnavigation-breadcrumb" data-component-id="1">
```

```
    <div class="default-breadcrumb breadcrumb-bar-wrap-outer onlyTitle">  
        <nav role="" aria-label="Breadcrumbs" class="breadcrumb-bar-wrap  
initialized" style="width: 390px;">  
            <ol class="breadcrumb-bar scrolling-wrapper" aria-hidden="false">
```

```
        <!-- Breadcrumb for Support Templates -->
```

```
            <li class="menuitem breadcrumb-current-page active" aria-  
current="page">  
                <div class="leaf-node current-page"><span>3.4.1. Creating  
IPS File</span></div>  
            </li>
```

```
        </ol>  
        <button title="previous item" class="nav-paddle nav-prev fa-angle-  
left" type="button" style="display: none;"></button>  
        <button title="next item" class="nav-paddle nav-next fa-angle-right  
for-displaying" type="button" style="display: inline-block; right:  
0px;"></button>  
    </nav>
```

</div>

</div>

```
<script type="text/javascript">
  intel = intel || {};
  intel.utils = intel.utils || {};
  intel.utils.breadcrumbSource = "onlyTitle";
  intel.utils.isDefaultSecondaryNavNeeded = "true";
  intel.utils.displayTitle = "3.4.1. Creating IPS File";
</script>
```

```

  <script type="text/javascript">
    var globalHeader = globalHeader || {};
    globalHeader = {
      currentPath:
"/content/www/us/en/docs/programmable/683865/current/creating-ips-file",
      lanloc: "/us/en",
      lanLoc: "US/en",
      helpformurl: "",
      intelHeaderFooterVersion: "menu3",
      megaMenuPath: "/content/data/globalelements/US/en/globalnav4",
      globalBannerPath: "/content/data/globalelements/US/en/sitewide-
banner-placeholder",
      subMenuPath: "",
      isCHF:false,
      secureRedirectURL: "",
      excludeGlobalNav4: "false",
      allowSubNavigationBreadcrumb: "true",
    }
  </script>
```

```

        breadcrumbParentPagePath: "",
        myintelHeaderLinkAgs: "RDC Basic View,RDC BASIC View,RDC
Privileged Full,Intel Registration Center Access,IDZ-User,Basic Intel Registration
Role,Intel Developer Zone User,Khoros Customer Community Access,PSG
External Basic B2B Bundle,PSG External Customer Notification Subscriptions,PSG
External Digital Power Configuration Download,PSG External Material Declaration
Datasheet Download,PSG External Online Events Registration,PSG External
Quartus Web Edition license request,PSG External MAX PLUS II Baseline License
Request,PSG External Reference Design Request,PSG External IP Evaluation
Request,PSG External IP Early Access Request,PSG External Reference Designs
downloads,PSG External MAX PLUS II software downloads,PSG External Download
Center,PSG External University Program,PSG External Training,PSG External Self
Service Licensing Center,IRC User Access~RDC Privileged Full,Sales-PRM-
External-Customers Employee-User~RDC Basic View,RDC BASIC View,RDC
Privileged Full,IDZ-User,Basic Intel Registration Role,Intel Developer Zone
User,Khoros Customer Community Access,PSG External Basic B2B Bundle,PSG
External Customer Notification Subscriptions,PSG External Digital Power
Configuration Download,PSG External Material Declaration Datasheet
Download,PSG External Online Events Registration,PSG External Quartus Web
Edition license request,PSG External MAX PLUS II Baseline License Request,PSG
External Reference Design Request,PSG External IP Evaluation Request,PSG
External IP Early Access Request,PSG External Reference Designs downloads,PSG
External MAX PLUS II software downloads,PSG External Download Center,PSG
External University Program,PSG External Training,PSG External Self Service
Licensing Center,IRC User Access",
    }
</script>

```

```

<script src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/
pages/nav.min.js" defer=""></script>
<script src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/
pages/secondaryNav.min.js" defer=""></script>
</div>

```

```

<section data-scroll-track="false">
  <div class="container">
    <div class="row">
      <div class="col-xs-12 pull-right persistent-cta-integration-globalNav"
id="alertMsg">
        <div id="alertSupport">
          <div class="browser_detect browser_detect_not_fixed"
id="browserdetectid" style="display:none;">
            <p>The browser version you are using is not recommended for
this site.<br>Please consider upgrading to the latest version of your browser by
clicking one of the following links.</p>
            <div class="browser_types">
              <ul>

```

```

        <li><a
href="https://support.apple.com/downloads/safari">Safari</a></li>

        <li><a
href="https://support.google.com/chrome/answer/95346?hl=en">Chrome</
a></li>

        <li><a
href="https://www.microsoft.com/en-us/edge">Edge</a></li>

        <li><a
href="https://www.mozilla.org/en-US/firefox/new/">Firefox</a></li>
    </ul>
</div>
</div>
</div>
</div>
</div>
</div>
</div>
</section>

<main id="primary-content">
```

```

<link rel="stylesheet"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
udeDocumentationDetail.min.css" type="text/css">
<script src="/etc.clientlibs/clientlibs/granite/jquery.min.js"></script>
<script src="/etc.clientlibs/clientlibs/granite/utils.min.js"></script>
<script src="/etc.clientlibs/clientlibs/granite/jquery/granite.min.js"></script>
<script src="/etc.clientlibs/foundation/clientlibs/jquery.min.js"></script>
<script src="/etc.clientlibs/settings/wcm/clientlibs/ver/220720/foundation/
jquery.min.js"></script>
<script src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/
pages/udeDocumentationDetail.min.js"></script>
```

```

<div class="page-content">
    <div class="marquee">
```



```
<input type="hidden" name="ude-GroupId" id="DocumentationGroupId"
value="683865">
<input type="hidden" name="ude-bookId-node"
id="DocumentationPublicationId" value="666495">
<input type="hidden" name="ude-search"
id="DocumentationSearchUrlHiddenField"
value="/content/www/us/en/docs/programmable/683865/current">
```

```
<div id="marquee-1" class="component intel-ws theme-dark-default marquee-
documentation-detail force-background solid brand-primary" data-
component="marquee" data-component-id="1">
```

```
    <div class="container">
        <div class="row">
            <div class="col-xs-12">
                <p></p>
            </div>
        </div>
        <div class="row">
            <div class="col-xs-12 col-md-8">
                <h2 class="h1">Intel® MAX® 10 FPGA Configuration User
Guide</h2>
            </div>
```

```
            <div class="col-xs-12 col-md-4 cta-col bookmark-able">
```

```
                <a href="https://cdrdv2.intel.com/v1/dl/getContent/666495?
fileName=ug-683865-666495.pdf" class="btn btn-secondary">Download</a>
```

```
        <button data-wap="" data-wap_ref="bookmark-button"
class="bookmark-toggle btn btn-secondary"
onclick="toggleBookmark('bookmarkinput')" onload="onLoad()" style="display:
none;">Bookmark<span class="sr-only"></span>
        <input type="checkbox" id="bookmarkinput" tabindex="-1">
```

```
    </button>
```

```
    </div>
```

```
</div>
```

```
<div class="row collection-row hidden-info" style="display: none;">
```

```
    <div class="col-xs-12 in-collections">
```

```
        <span class="collections-label"></span>
```

```
        <div class="collections">
```

```
        </div>
```

```
    </div>
```

```
</div>
```

```
<div class="row info-row hidden-info">
```

```
    <div class="col-xs-12 col-md-8">
```

```
        <div class="info-col">
```

```
            <span class="label">ID</span>
```

```
            <span class="value">683865</span>
```

```
        </div>
```

```
        <div class="info-col">
```

```
            <span class="label">Date</span>
```

```
            <span class="value">5/26/2022</span>
```

```
        </div>
```

```
        <div class="marquee-search">
```

```
            <input type="hidden" name="currentPageVersion"
```

```
id="CurrentPageVersionHiddenField" value="current">
```

```
            <label for="marquee-search-select" class="marquee-search-select-
label">
```

```
                <span>Version</span>
```

```
                <label class="single_version">current</label>
```

```
            </label>
```

```
        </div>
```

```
        <div class="additional-info">
```

```
            <span>Public</span>
```

```
        </div>
```

```
    </div>
```

```
</div>
```

```

<div class="row showButtonRow">
  <div class="view-more-button">

    <button onclick="showMore()" class="show-more-show-less show-
more">View More<span class="fa-angle-down"></span></button>
    <button onclick="showLess()" class="show-more-show-less see-less
hidden-info">See Less<span class="fa-angle-up"></span></button>

  </div>
</div>
</div>
</div>
</div>

<div class="intel-ws ude ude-documentation-details">
  <div class="ude-documentation-details-container upe-spynav-content
container">
    <div class="ude-documentation-details-main row">
      <div class="toc tableOfContent">

<div id="tableOfContent-1" class="component ude-documentation-details-nav-
wrapper col-xs-12 col-lg-3 " data-component="tableOfContent" data-component-
id="1">
  <div class="ude-documentation-details-mobile-navigation">

    <div class="row ude-document-details-info hidden-lg hidden-xl">

<div id="internalUser" class="col-md-12 col-xs-12" style="display: none;">
  <div class="col-lg-10 col-xs-12">

```

<p><span class="disclaimer">Visible to Intel only — </span>

<span class="label">GUID:</span>

<span class="info">hfr1472107352141</span></p>

<p><span class="label"></span> <span  
class="info">Ixiasoft</span>  
</p>

</div>  
<div class="col-lg-2 col-xs-12">  
 <p class="cta-item">  
 <a class="btn btn-tertiary"  
href="/content/www/us/en/secure/design/internal/content-details.html?  
DocID="><span>View Details</span></a>  
 </p>  
</div>  
</div>

</div>

<div class="filter-dropdown-search-wrapper component disabled" data-  
component="wa\_skip\_track" data-component-id="1">  
 <label for="documentation-details-search" class="filter-dropdown-  
search-label">  
 <input class="filter-dropdown-search" type="search"  
id="documentation-details-search" aria-label="Search for filter" size="10"  
placeholder="Search this document">  
 <button class="btn-cancel-search" data-close="documentation-  
details-search"><span class="sr-only">Close Filter Modal</span><span  
class="fa-cancel-1"></span></button>  
 </label>  
</div>  
 <a href="#table-of-contents" class="btn btn-secondary hub-toggle  
>Document Table of Contents</a>  
 <div id="table-of-contents" class="hub-content off-screen">  
 <div class="hub-content-header">  
 <div class="container">  
 <a class="back-hub-link" href="#">Document Table of  
Contents</a>  
 </div>  
 </div>  
 <div class="hub-content-wrap">

<a  
href="/content/www/us/en/docs/programmable/683865/current/fpga-

[configuration-overview.html#dropdown-1-0" class="hub-toggle"><span class="hub-toggle-content">1. Intel® MAX® 10 FPGA Configuration Overview</span></a>](#)

</div>  
</div>

<div id="dropdown-1-1" class="hub-content off-screen">  
 <div class="hub-content-header">  
 <div class="container">  
 <a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/fpga-configuration-schemes-and-features.html">2. Intel® MAX® 10 FPGA Configuration Schemes and Features</a>  
 </div>  
 </div>

```
<div class="hub-content-wrap">
```

```
    <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
schemes.html#dropdown-1-1-0" class="hub-toggle "><span class="hub-toggle-
content">2.1. Configuration Schemes</span></a>
```

```
    <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
features.html#dropdown-1-1-1" class="hub-toggle "><span class="hub-toggle-
content">2.2. Configuration Features</span></a>
```

```
    <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
details.html#dropdown-1-1-2" class="hub-toggle "><span class="hub-toggle-
content">2.3. Configuration Details</span></a>
```

```
</div>
</div>
```

```
    <div id="dropdown-1-1-0" class="hub-content off-screen">
      <div class="hub-content-header">
        <div class="container">
          <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/configuration-
schemes.html">2.1. Configuration Schemes</a>
        </div>
      </div>
    <div class="hub-content-wrap">
```

```
      <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-
configuration.html#dropdown-1-1-0-0" class="hub-toggle"><span class="hub-
toggle-content">2.1.1. JTAG Configuration</span></a>
```

```
      <a
href="/content/www/us/en/docs/programmable/683865/current/internal-
configuration.html#dropdown-1-1-0-1" class="hub-toggle"><span class="hub-
toggle-content">2.1.2. Internal Configuration</span></a>
```

```
    </div>
  </div>
```

```
screen">
    <div class="hub-content-header">
```

```

                <div class="container">
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/jtag-
configuration.html">2.1.1. JTAG Configuration</a>

```

```

                </div>

```

```

            </div>

```

```

        <div class="hub-content-wrap">

```

```

            <a

```

```

href="/content/www/us/en/docs/programmable/683865/current/jtag-
pins.html#dropdown-1-1-0-0-0" class="hub-toggle"><span class="hub-toggle-
content">2.1.1.1. JTAG Pins</span></a>

```

```

        </div>

```

```

    </div>

```

```

screen">
        <div id="dropdown-1-1-0-1" class="hub-content off-

```

```

            <div class="hub-content-header">

```

```

                <div class="container">

```

```

                    <a class="back-hub-link"

```

```

href="/content/www/us/en/docs/programmable/683865/current/internal-
configuration.html">2.1.2. Internal Configuration</a>

```

```

                </div>

```

```

            </div>

```

```

        <div class="hub-content-wrap">

```

```

            <a

```

```

href="/content/www/us/en/docs/programmable/683865/current/internal-
configuration-modes.html#dropdown-1-1-0-1-0" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.1. Internal Configuration Modes</span></a>

```

```

            <a

```

```

href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory.html#dropdown-1-1-0-1-1" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.2. Configuration Flash Memory</span></a>

```

```

            <a

```

```

href="/content/www/us/en/docs/programmable/683865/current/in-system-
programming.html#dropdown-1-1-0-1-2" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.3. In-System Programming</span></a>

```

```

<a
href="/content/www/us/en/docs/programmable/683865/current/initialization-
configuration-bits.html#dropdown-1-1-0-1-3" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.4. Initialization Configuration
Bits</span></a>

```

```

<a
href="/content/www/us/en/docs/programmable/683865/current/internal-
configuration-time.html#dropdown-1-1-0-1-4" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.5. Internal Configuration Time</span></a>

```

```

</div>
</div>

```

```

<div id="dropdown-1-1-0-1-1" class="hub-
content off-screen">
    <div class="hub-content-header">
        <div class="container">
            <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory.html">2.1.2.2. Configuration Flash Memory</a>
            </div>
        </div>
        <div class="hub-content-wrap">

```

```

            <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory-sectors.html#dropdown-1-1-0-1-1--0" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.2.1. Configuration Flash Memory
Sectors</span></a>

```

```

            <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory-programming-time.html#dropdown-1-1-0-1-1--1" class="hub-
toggle"><span class="hub-toggle-content">2.1.2.2.2. Configuration Flash
Memory Programming Time</span></a>

```

```

        </div>
    </div>

```

```

<div id="dropdown-1-1-0-1-2" class="hub-
content off-screen">

```



```

        <div class="hub-content-header">
            <div class="container">
                <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/in-system-
programming.html">2.1.2.3. In-System Programming</a>
            </div>
        </div>
    </div class="hub-content-wrap">

```

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/isp-
clamp.html#dropdown-1-1-0-1-2--0" class="hub-toggle"><span class="hub-
toggle-content">2.1.2.3.1. ISP Clamp</span></a>

```

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/real-time-
isp.html#dropdown-1-1-0-1-2--1" class="hub-toggle"><span class="hub-toggle-
content">2.1.2.3.2. Real-Time ISP</span></a>

```

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/isp-and-real-
time-isp-instructions.html#dropdown-1-1-0-1-2--2" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.3.3. ISP and Real-Time ISP
Instructions</span></a>

```

```

    </div>
</div>

```

```

    <div id="dropdown-1-1-1" class="hub-content off-screen">
        <div class="hub-content-header">
            <div class="container">
                <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/configuration-
features.html">2.2. Configuration Features</a>
            </div>
        </div>
    </div class="hub-content-wrap">

```

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade.html#dropdown-1-1-1-0" class="hub-toggle"><span class="hub-toggle-
content">2.2.1. Remote System Upgrade</span></a>

```

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
design-security.html#dropdown-1-1-1-1" class="hub-toggle"><span class="hub-
toggle-content">2.2.2. Configuration Design Security</span></a>

```

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/seu-mitigation-
and-configuration-error.html#dropdown-1-1-1-2" class="hub-toggle"><span
class="hub-toggle-content">2.2.3. SEU Mitigation and Configuration Error
Detection</span></a>

```

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
data-compression.html#dropdown-1-1-1-3" class="hub-toggle"><span
class="hub-toggle-content">2.2.4. Configuration Data
Compression</span></a>

```

```

    </div>
</div>

```

```

        <div id="dropdown-1-1-1-0" class="hub-content off-
screen">

```

```

            <div class="hub-content-header">
                <div class="container">
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade.html">2.2.1. Remote System Upgrade</a>
                </div>
            </div>
            <div class="hub-content-wrap">

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade-flow.html#dropdown-1-1-1-0-0" class="hub-toggle"><span class="hub-
toggle-content">2.2.1.1. Remote System Upgrade Flow</span></a>

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade-circuitry.html#dropdown-1-1-1-0-1" class="hub-toggle"><span

```

class="hub-toggle-content">2.2.1.2. Remote System Upgrade  
Circuitry</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/user-watchdog-  
timer.html#dropdown-1-1-1-0-2" class="hub-toggle"><span class="hub-toggle-  
content">2.2.1.3. User Watchdog Timer</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/dual-  
configuration-core-79122.html#dropdown-1-1-1-0-3" class="hub-toggle"><span  
class="hub-toggle-content">2.2.1.4. Dual Configuration Intel® FPGA IP  
Core</span></a>

</div>  
</div>

<div id="dropdown-1-1-1-0-1" class="hub-  
content off-screen">  
<div class="hub-content-header">  
<div class="container">  
<a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/remote-system-  
upgrade-circuitry.html">2.2.1.2. Remote System Upgrade Circuitry</a>  
</div>  
</div>  
<div class="hub-content-wrap">

<a  
href="/content/www/us/en/docs/programmable/683865/current/remote-system-  
upgrade-circuitry-signals.html#dropdown-1-1-1-0-1--0" class="hub-  
toggle"><span class="hub-toggle-content">2.2.1.2.1. Remote System Upgrade  
Circuitry Signals</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/remote-system-  
upgrade-circuitry-input.html#dropdown-1-1-1-0-1--1" class="hub-toggle"><span  
class="hub-toggle-content">2.2.1.2.2. Remote System Upgrade Circuitry Input  
Control</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/remote-system-  
upgrade-input-register.html#dropdown-1-1-1-0-1--2" class="hub-toggle"><span

class="hub-toggle-content">2.2.1.2.3. Remote System Upgrade Input Register</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/remote-system-upgrade-status-registers.html#dropdown-1-1-1-0-1--3" class="hub-toggle"><span class="hub-toggle-content">2.2.1.2.4. Remote System Upgrade Status Registers</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/master-state-machine.html#dropdown-1-1-1-0-1--4" class="hub-toggle"><span class="hub-toggle-content">2.2.1.2.5. Master State Machine</span></a>

</div>  
</div>

<div id="dropdown-1-1-1-1" class="hub-content off-screen">

<div class="hub-content-header">  
<div class="container">  
<a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/configuration-design-security.html">2.2.2. Configuration Design Security</a>  
</div>  
</div>  
<div class="hub-content-wrap">

<a  
href="/content/www/us/en/docs/programmable/683865/current/aes-encryption-protection.html#dropdown-1-1-1-1-0" class="hub-toggle"><span class="hub-toggle-content">2.2.2.1. AES Encryption Protection</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id.html#dropdown-1-1-1-1-1" class="hub-toggle"><span class="hub-toggle-content">2.2.2.2. Unique Chip ID</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-  
mode.html#dropdown-1-1-1-1-2" class="hub-toggle"><span class="hub-toggle-  
content">2.2.2.3. JTAG Secure Mode</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/verify-  
protect.html#dropdown-1-1-1-1-3" class="hub-toggle"><span class="hub-  
toggle-content">2.2.2.4. Verify Protect</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/jtag-instruction-  
availability.html#dropdown-1-1-1-1-4" class="hub-toggle"><span class="hub-  
toggle-content">2.2.2.5. JTAG Instruction Availability</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/configuration-  
flash-memory-permissions.html#dropdown-1-1-1-1-5" class="hub-  
toggle"><span class="hub-toggle-content">2.2.2.6. Configuration Flash Memory  
Permissions</span></a>

</div>  
</div>

<div id="dropdown-1-1-1-1-0" class="hub-  
content off-screen">  
    <div class="hub-content-header">  
        <div class="container">  
            <a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/aes-encryption-  
protection.html">2.2.2.1. AES Encryption Protection</a>  
            </div>  
        </div>  
    <div class="hub-content-wrap">

        <a  
href="/content/www/us/en/docs/programmable/683865/current/encryption-and-  
decryption.html#dropdown-1-1-1-1-0--0" class="hub-toggle"><span class="hub-  
toggle-content">2.2.2.1.1. Encryption and Decryption</span></a>

    </div>  
</div>

```
content off-screen">
    <div id="dropdown-1-1-1-1-1" class="hub-
    <div class="hub-content-header">
        <div class="container">
            <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/unique-chip-
id.html">2.2.2.2. Unique Chip ID</a>
        </div>
    </div>
    <div class="hub-content-wrap">

        <a
href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-
core-80250.html#dropdown-1-1-1-1-1-0" class="hub-toggle"><span
class="hub-toggle-content">2.2.2.2.1. Unique Chip ID Intel® FPGA IP
Core</span></a>

    </div>
</div>
```

```
content off-screen">
    <div id="dropdown-1-1-1-1-2" class="hub-
    <div class="hub-content-header">
        <div class="container">
            <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-
mode.html">2.2.2.3. JTAG Secure Mode</a>
        </div>
    </div>
    <div class="hub-content-wrap">

        <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-
mode-instructions.html#dropdown-1-1-1-1-2-0" class="hub-toggle"><span
class="hub-toggle-content">2.2.2.3.1. JTAG Secure Mode
Instructions</span></a>

    </div>
</div>
```

```
content off-screen">
    <div id="dropdown-1-1-1-1-5" class="hub-
```

```

                <div class="hub-content-header">
                    <div class="container">
                        <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory-permissions.html">2.2.2.6. Configuration Flash Memory
Permissions</a>

```

```

                    </div>
                </div>
            <div class="hub-content-wrap">

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/flash-region-
access-control-and-immutability.html#dropdown-1-1-1-1-5--0" class="hub-
toggle"><span class="hub-toggle-content">2.2.2.6.1. Flash Region Access
Control and Immutability</span></a>

```

```

            </div>
        </div>

```

```

        <div id="dropdown-1-1-1-2" class="hub-content off-
screen">

```

```

            <div class="hub-content-header">
                <div class="container">
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/seu-mitigation-
and-configuration-error.html">2.2.3. SEU Mitigation and Configuration Error
Detection</a>

```

```

                </div>
            </div>
        <div class="hub-content-wrap">

```

```

            <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
error-detection.html#dropdown-1-1-1-2-0" class="hub-toggle"><span
class="hub-toggle-content">2.2.3.1. Configuration Error Detection</span></a>

```

```

            <a
href="/content/www/us/en/docs/programmable/683865/current/user-mode-error-
detection.html#dropdown-1-1-1-2-1" class="hub-toggle"><span class="hub-
toggle-content">2.2.3.2. User Mode Error Detection</span></a>

```

```

            <a
href="/content/www/us/en/docs/programmable/683865/current/error-detection-

```

timing.html#dropdown-1-1-1-2-2" class="hub-toggle"><span class="hub-toggle-content">2.2.3.3. Error Detection Timing</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/recovering-from-crc-errors.html#dropdown-1-1-1-2-3" class="hub-toggle"><span class="hub-toggle-content">2.2.3.4. Recovering from CRC Errors</span></a>

</div>  
</div>

<div id="dropdown-1-1-1-2-1" class="hub-content off-screen">  
<div class="hub-content-header">  
<div class="container">  
<a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/user-mode-error-detection.html">2.2.3.2. User Mode Error Detection</a>  
</div>  
</div>  
<div class="hub-content-wrap">

<a  
href="/content/www/us/en/docs/programmable/683865/current/error-detection-block.html#dropdown-1-1-1-2-1--0" class="hub-toggle"><span class="hub-toggle-content">2.2.3.2.1. Error Detection Block</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/change-edreg-jtag-instruction.html#dropdown-1-1-1-2-1--1" class="hub-toggle"><span class="hub-toggle-content">2.2.3.2.2. CHANGE\_EDREG JTAG Instruction</span></a>

</div>  
</div>

<div id="dropdown-1-1-1-2-2" class="hub-content off-screen">  
<div class="hub-content-header">  
<div class="container">  
<a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/error-detection-timing.html">2.2.3.3. Error Detection Timing</a>



```
</div>
</div>
<div class="hub-content-wrap">
```

```
    <a
href="/content/www/us/en/docs/programmable/683865/current/error-detection-
frequency.html#dropdown-1-1-1-2-2--0" class="hub-toggle"><span class="hub-
toggle-content">2.2.3.3.1. Error Detection Frequency</span></a>
```

```
    <a
href="/content/www/us/en/docs/programmable/683865/current/cyclic-
redundancy-check-calculation-timing.html#dropdown-1-1-1-2-2--1" class="hub-
toggle"><span class="hub-toggle-content">2.2.3.3.2. Cyclic Redundancy Check
Calculation Timing</span></a>
```

```
</div>
</div>
```

```
    <div id="dropdown-1-1-2" class="hub-content off-screen">
      <div class="hub-content-header">
        <div class="container">
          <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/configuration-
details.html">2.3. Configuration Details</a>
        </div>
      </div>
    </div>
  <div class="hub-content-wrap">
```

```
    <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
sequence.html#dropdown-1-1-2-0" class="hub-toggle"><span class="hub-
toggle-content">2.3.1. Configuration Sequence</span></a>
```

```
    <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
pins.html#dropdown-1-1-2-1" class="hub-toggle"><span class="hub-toggle-
content">2.3.2. Intel® MAX® 10 Configuration Pins</span></a>
```

```
</div>
</div>
```

```
<div id="dropdown-1-1-2-0" class="hub-content off-
screen">
```

```
<div class="hub-content-header">
  <div class="container">
    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/configuration-
sequence.html">2.3.1. Configuration Sequence</a>
  </div>
</div>
<div class="hub-content-wrap">
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/power-
up.html#dropdown-1-1-2-0-0" class="hub-toggle"><span class="hub-toggle-
content">2.3.1.1. Power-up</span></a>
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/configuration.ht
ml#dropdown-1-1-2-0-1" class="hub-toggle"><span class="hub-toggle-
content">2.3.1.2. Configuration</span></a>
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
error-handling.html#dropdown-1-1-2-0-2" class="hub-toggle"><span
class="hub-toggle-content">2.3.1.3. Configuration Error Handling</span></a>
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/initialization.html
#dropdown-1-1-2-0-3" class="hub-toggle"><span class="hub-toggle-
content">2.3.1.4. Initialization</span></a>
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/user-
mode.html#dropdown-1-1-2-0-4" class="hub-toggle"><span class="hub-toggle-
content">2.3.1.5. User Mode</span></a>
```

```
</div>
</div>
```

```

content off-screen">
    <div id="dropdown-1-1-2-0-0" class="hub-
    <div class="hub-content-header">
        <div class="container">
            <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/power-
up.html">2.3.1.1. Power-up</a>
        </div>
    </div>
    <div class="hub-content-wrap">

        <a
href="/content/www/us/en/docs/programmable/683865/current/por-monitored-
voltage-rails-for-single.html#dropdown-1-1-2-0-0--0" class="hub-toggle"><span
class="hub-toggle-content">2.3.1.1.1. POR Monitored Voltage Rails for Single-
supply and Dual-supply Intel® MAX® 10 Devices</span></a>

        <a
href="/content/www/us/en/docs/programmable/683865/current/monitored-
power-supplies-ramp-time-requirement.html#dropdown-1-1-2-0-0--1"
class="hub-toggle"><span class="hub-toggle-content">2.3.1.1.2. Monitored
Power Supplies Ramp Time Requirement for Intel® MAX® 10
Devices</span></a>

    </div>
</div>

```

```

<div id="dropdown-1-2" class="hub-content off-screen">
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        <div class="container">

```

[3. Intel® MAX® 10 FPGA Configuration Design Guidelines](/content/www/us/en/docs/programmable/683865/current/fpga-configuration-design-guidelines.html)

[3.1. Dual-Purpose Configuration Pins](/content/www/us/en/docs/programmable/683865/current/dual-purpose-configuration-pins.html#dropdown-1-2-0)

[3.2. Configuring Intel® MAX® 10 Devices using JTAG Configuration](/content/www/us/en/docs/programmable/683865/current/configuring-devices-using-jtag-configuration.html#dropdown-1-2-1)

[3.3. Configuring Intel® MAX® 10 Devices using Internal Configuration](/content/www/us/en/docs/programmable/683865/current/configuring-devices-using-internal-.html#dropdown-1-2-2)

[3.4. Implementing ISP Clamp in Intel® Quartus® Prime Software](/content/www/us/en/docs/programmable/683865/current/implementing-isp-clamp-in-software.html#dropdown-1-2-3)

[3.5. Accessing Remote System Upgrade through User Logic](/content/www/us/en/docs/programmable/683865/current/accessing-remote-system-upgrade-through.html#dropdown-1-2-4)

[3.6. Error Detection](/content/www/us/en/docs/programmable/683865/current/error-detection.html#dropdown-1-2-5)

[3.7. Enabling Data Compression](/content/www/us/en/docs/programmable/683865/current/enabling-data-compression.html#dropdown-1-2-6)

[3.8. AES Encryption](/content/www/us/en/docs/programmable/683865/current/aes-encryption.html#dropdown-1-2-7)

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-
design-example.html#dropdown-1-2-8" class="hub-toggle "><span class="hub-
toggle-content">3.9. Intel® MAX® 10 JTAG Secure Design
Example</span></a>

```

```

    </div>
</div>

```

```

        <div id="dropdown-1-2-0" class="hub-content off-screen">
            <div class="hub-content-header">
                <div class="container">
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/dual-purpose-
configuration-pins.html">3.1. Dual-Purpose Configuration Pins</a>
                </div>
            </div>
            <div class="hub-content-wrap">

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/guidelines-dual-
purpose-configuration-pin.html#dropdown-1-2-0-0" class="hub-toggle"><span
class="hub-toggle-content">3.1.1. Guidelines: Dual-Purpose Configuration
Pin</span></a>

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/enabling-dual-
purpose-pin.html#dropdown-1-2-0-1" class="hub-toggle"><span class="hub-
toggle-content">3.1.2. Enabling Dual-Purpose Pin</span></a>

```

```

            </div>
        </div>

```

```

        <div id="dropdown-1-2-0-0" class="hub-content off-
screen">
            <div class="hub-content-header">
                <div class="container">
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/guidelines-dual-
purpose-configuration-pin.html">3.1.1. Guidelines: Dual-Purpose Configuration
Pin</a>
                </div>
            </div>
            <div class="hub-content-wrap">

```

```

                                <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-pin-sharing-
behavior.html#dropdown-1-2-0-0-0" class="hub-toggle"><span class="hub-
toggle-content">3.1.1.1. JTAG Pin Sharing Behavior</span></a>

```

```

                                </div>
                                </div>

```

```

                                <div id="dropdown-1-2-1" class="hub-content off-screen">
                                <div class="hub-content-header">
                                <div class="container">
                                <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/configuring-
devices-using-jtag-configuration.html">3.2. Configuring Intel® MAX® 10 Devices
using JTAG Configuration</a>
                                </div>
                                </div>
                                <div class="hub-content-wrap">

```

```

                                <a
href="/content/www/us/en/docs/programmable/683865/current/auto-generating-
configuration-files.html#dropdown-1-2-1-0" class="hub-toggle"><span
class="hub-toggle-content">3.2.1. Auto-Generating Configuration Files for Third-
Party Programming Tools</span></a>

```

```

                                <a
href="/content/www/us/en/docs/programmable/683865/current/generating-third-
party-programming-files%20generating-third-party-programming-files
%20generating-third-party-programming-files.html#dropdown-1-2-1-1"
class="hub-toggle"><span class="hub-toggle-content">Generating Third-Party
Programming Files using Intel® Quartus® Prime Programmer</span></a>

```

```

                                <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-
configuration-setup.html#dropdown-1-2-1-2" class="hub-toggle"><span
class="hub-toggle-content">3.2.3. JTAG Configuration Setup</span></a>

```

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/icb-settings-in-
jtag-configuration.html#dropdown-1-2-1-3" class="hub-toggle"><span
class="hub-toggle-content">3.2.4. ICB Settings in JTAG
Configuration</span></a>

```

```

    </div>
</div>

```

```

        <div id="dropdown-1-2-2" class="hub-content off-screen">
            <div class="hub-content-header">
                <div class="container">
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/configuring-
devices-using-internal-.html">3.3. Configuring Intel® MAX® 10 Devices using
Internal Configuration</a>
                </div>
            </div>
            <div class="hub-content-wrap">

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/selecting-
internal-configuration-modes.html#dropdown-1-2-2-0" class="hub-
toggle"><span class="hub-toggle-content">3.3.1. Selecting Internal
Configuration Modes</span></a>

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/pof-and-icb-
settings.html#dropdown-1-2-2-1" class="hub-toggle"><span class="hub-toggle-
content">3.3.2. .pof and ICB Settings</span></a>

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/programming-
pof-into-internal-flash.html#dropdown-1-2-2-2" class="hub-toggle"><span
class="hub-toggle-content">3.3.3. Programming .pof into Internal
Flash</span></a>

```

```
</div>
</div>
```

```
<div id="dropdown-1-2-2-1" class="hub-content off-
screen">
```

```
<div class="hub-content-header">
  <div class="container">
    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/pof-and-icb-
settings.html">3.3.2. .pof and ICB Settings</a>
  </div>
</div>
<div class="hub-content-wrap">
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/auto-generated-
pof.html#dropdown-1-2-2-1-0" class="hub-toggle"><span class="hub-toggle-
content">3.3.2.1. Auto-Generated .pof</span></a>
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/generating-pof-
using-convert-programming.html#dropdown-1-2-2-1-1" class="hub-
toggle"><span class="hub-toggle-content">3.3.2.2. Generating .pof using
Convert Programming Files</span></a>
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/generating-third-
party-programming-files%20generating-third-party-programming-files
%20generating-third-party-programming-files-01.html#dropdown-1-2-2-1-2"
class="hub-toggle"><span class="hub-toggle-content">Generating Third-Party
Programming Files using Intel® Quartus® Prime Programmer</span></a>
```

```
</div>
</div>
```



```

        <div id="dropdown-1-2-3" class="hub-content off-screen">
            <div class="hub-content-header">
                <div class="container">
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/implementing-
isp-clamp-in-software.html">3.4. Implementing ISP Clamp in Intel® Quartus®
Prime Software</a>
                </div>
            </div>
            <div class="hub-content-wrap">

                <a
href="/content/www/us/en/docs/programmable/683865/current/creating-ips-
file.html#dropdown-1-2-3-0" class="hub-toggle"><span class="hub-toggle-
content">3.4.1. Creating IPS File</span></a>

                <a
href="/content/www/us/en/docs/programmable/683865/current/executing-ips-
file.html#dropdown-1-2-3-1" class="hub-toggle"><span class="hub-toggle-
content">3.4.2. Executing IPS File</span></a>

            </div>
        </div>

```

```

        <div id="dropdown-1-2-5" class="hub-content off-screen">
            <div class="hub-content-header">
                <div class="container">
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/error-
detection.html">3.6. Error Detection</a>
                </div>
            </div>
            <div class="hub-content-wrap">

```

[<a href="/content/www/us/en/docs/programmable/683865/current/verifying-error-detection-functionality.html#dropdown-1-2-5-0" class="hub-toggle"><span class="hub-toggle-content">3.6.1. Verifying Error Detection Functionality</span></a>](/content/www/us/en/docs/programmable/683865/current/verifying-error-detection-functionality.html#dropdown-1-2-5-0)

[<a href="/content/www/us/en/docs/programmable/683865/current/enabling-error-detection.html#dropdown-1-2-5-1" class="hub-toggle"><span class="hub-toggle-content">3.6.2. Enabling Error Detection</span></a>](/content/www/us/en/docs/programmable/683865/current/enabling-error-detection.html#dropdown-1-2-5-1)

[<a href="/content/www/us/en/docs/programmable/683865/current/accessing-error-detection-block-through.html#dropdown-1-2-5-2" class="hub-toggle"><span class="hub-toggle-content">3.6.3. Accessing Error Detection Block Through User Logic</span></a>](/content/www/us/en/docs/programmable/683865/current/accessing-error-detection-block-through.html#dropdown-1-2-5-2)

</div>  
</div>

<div id="dropdown-1-2-6" class="hub-content off-screen">  
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 <div class="container">  
 <a class="back-hub-link" href="/content/www/us/en/docs/programmable/683865/current/enabling-data-compression.html">3.7. Enabling Data Compression</a>  
 </div>  
 </div>  
<div class="hub-content-wrap">

[<a href="/content/www/us/en/docs/programmable/683865/current/enabling-compression-before-design-.html#dropdown-1-2-6-0" class="hub-toggle"><span class="hub-toggle-content">3.7.1. Enabling Compression Before Design Compilation</span></a>](/content/www/us/en/docs/programmable/683865/current/enabling-compression-before-design-.html#dropdown-1-2-6-0)

[<a href="/content/www/us/en/docs/programmable/683865/current/enabling-compression-after-design-c.html#dropdown-1-2-6-1" class="hub-toggle"><span class="hub-toggle-content">3.7.2. Enabling Compression After Design Compilation</span></a>](/content/www/us/en/docs/programmable/683865/current/enabling-compression-after-design-c.html#dropdown-1-2-6-1)

</div>  
</div>

[<a href="/content/www/us/en/docs/programmable/683865/current/generating-ekp-file-and-encrypt-configuration.html#dropdown-1-2-7-0" class="hub-toggle"><span class="hub-toggle-content">3.8.1. Generating .ekp File and Encrypt Configuration File</span></a>](/content/www/us/en/docs/programmable/683865/current/generating-ekp-file-and-encrypt-configuration.html#dropdown-1-2-7-0)

[<a href="/content/www/us/en/docs/programmable/683865/current/generating-jam-jbc-svf-file-from-ekp-file.html#dropdown-1-2-7-1" class="hub-toggle"><span class="hub-toggle-content">3.8.2. Generating .jam/.jbc/.svf file from .ekp file</span></a>](/content/www/us/en/docs/programmable/683865/current/generating-jam-jbc-svf-file-from-ekp-file.html#dropdown-1-2-7-1)

[<a href="/content/www/us/en/docs/programmable/683865/current/programming-ekp-file-and-encrypted-pof-file.html#dropdown-1-2-7-2" class="hub-toggle"><span class="hub-toggle-content">3.8.3. Programming .ekp File and Encrypted POF File</span></a>](/content/www/us/en/docs/programmable/683865/current/programming-ekp-file-and-encrypted-pof-file.html#dropdown-1-2-7-2)

[<a href="/content/www/us/en/docs/programmable/683865/current/encryption-in-internal-configuration.html#dropdown-1-2-7-3" class="hub-toggle"><span](/content/www/us/en/docs/programmable/683865/current/encryption-in-internal-configuration.html#dropdown-1-2-7-3)

class="hub-toggle-content">3.8.4. Encryption in Internal Configuration</span></a>

</div>  
</div>

<div id="dropdown-1-2-7-2" class="hub-content off-screen">

<div class="hub-content-header">  
<div class="container">  
<a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/programming-ekp-file-and-encrypted-pof-file.html">3.8.3. Programming .ekp File and Encrypted POF File</a>

</div>  
</div>  
<div class="hub-content-wrap">

<a  
href="/content/www/us/en/docs/programmable/683865/current/programming-ekp-file-and-encrypted-pof.html#dropdown-1-2-7-2-0" class="hub-toggle"><span class="hub-toggle-content">3.8.3.1. Programming .ekp File and Encrypted .pof Separately</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/integrate-the-ekp-into-pof-programming.html#dropdown-1-2-7-2-1" class="hub-toggle"><span class="hub-toggle-content">3.8.3.2. Integrate the .ekp into .pof Programming</span></a>

</div>  
</div>

```
<div id="dropdown-1-2-8" class="hub-content off-screen">
  <div class="hub-content-header">
    <div class="container">
      <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-
design-example.html">3.9. Intel® MAX® 10 JTAG Secure Design Example</a>
    </div>
  </div>
</div class="hub-content-wrap">
```

```
    <a
href="/content/www/us/en/docs/programmable/683865/current/internal-and-
external-jtag-interfaces.html#dropdown-1-2-8-0" class="hub-toggle"><span
class="hub-toggle-content">3.9.1. Internal and External JTAG
Interfaces</span></a>
```

```
    <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-wysiwyg-
atom-for-jtag-control-block.html#dropdown-1-2-8-1" class="hub-toggle"><span
class="hub-toggle-content">3.9.2. JTAG WYSIWYG Atom for JTAG Control Block
Access Using Internal JTAG Interface</span></a>
```

```
    <a
href="/content/www/us/en/docs/programmable/683865/current/executing-lock-
and-unlock-jtag-instructions.html#dropdown-1-2-8-2" class="hub-toggle"><span
class="hub-toggle-content">3.9.3. Executing LOCK and UNLOCK JTAG
Instructions</span></a>
```

```
    <a
href="/content/www/us/en/docs/programmable/683865/current/verifying-the-
jtag-secure-mode.html#dropdown-1-2-8-3" class="hub-toggle"><span
class="hub-toggle-content">3.9.4. Verifying the JTAG Secure Mode</span></a>
```

```
  </div>
</div>
```

```

<div id="dropdown-1-3" class="hub-content off-screen">
  <div class="hub-content-header">
    <div class="container">
      <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/fpga-
configuration-ip-core-implementation.html">4. Intel® MAX® 10 FPGA
Configuration IP Core Implementation Guides</a>
    </div>
  </div>
</div>
<div class="hub-content-wrap">

  <a
href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-
core-27700.html#dropdown-1-3-0" class="hub-toggle "><span class="hub-
toggle-content">4.1. Unique Chip ID Intel® FPGA IP Core</span></a>

  <a
href="/content/www/us/en/docs/programmable/683865/current/dual-
configuration-core-26199.html#dropdown-1-3-1" class="hub-toggle "><span
class="hub-toggle-content">4.2. Dual Configuration Intel® FPGA IP
Core</span></a>

</div>
</div>

```

```

<div id="dropdown-1-3-0" class="hub-content off-screen">
  <div class="hub-content-header">
    <div class="container">
      <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-
core-27700.html">4.1. Unique Chip ID Intel® FPGA IP Core</a>
    </div>
  </div>
</div>
<div class="hub-content-wrap">

  <a
href="/content/www/us/en/docs/programmable/683865/current/instantiating-the-
unique-chip-id-core.html#dropdown-1-3-0-0" class="hub-toggle"><span
class="hub-toggle-content">4.1.1. Instantiating the Unique Chip ID Intel® FPGA
IP Core</span></a>

  <a
href="/content/www/us/en/docs/programmable/683865/current/resetting-the-

```

unique-chip-id-core.html#dropdown-1-3-0-1" class="hub-toggle"><span class="hub-toggle-content">4.1.2. Resetting the Unique Chip ID Intel® FPGA IP Core</span></a>

</div>  
</div>

<div id="dropdown-1-3-1" class="hub-content off-screen">  
 <div class="hub-content-header">  
 <div class="container">  
 <a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-26199.html">4.2. Dual Configuration Intel® FPGA IP Core</a>  
 </div>  
 </div>  
</div>

<a  
href="/content/www/us/en/docs/programmable/683865/current/instantiating-the-dual-configuration-core.html#dropdown-1-3-1-0" class="hub-toggle"><span class="hub-toggle-content">4.2.1. Instantiating the Dual Configuration Intel® FPGA IP Core</span></a>

</div>  
</div>

<div id="dropdown-1-4" class="hub-content off-screen">  
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 <div class="container">  
 <a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/dual-

configuration-core-references.html">5. Dual Configuration Intel® FPGA IP Core References</a>

</div>

</div>

<div class="hub-content-wrap">

<a

href="/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-memory-mapped.html#dropdown-1-4-0" class="hub-toggle "><span class="hub-toggle-content">5.1. Dual Configuration Intel® FPGA IP Core Avalon® Memory-Mapped Address Map</span></a>

<a

href="/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-parameters.html#dropdown-1-4-1" class="hub-toggle "><span class="hub-toggle-content">5.2. Dual Configuration Intel® FPGA IP Core Parameters</span></a>

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</div>

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<div class="container">

<a class="back-hub-link"

href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-core-references.html">6. Unique Chip ID Intel® FPGA IP Core References</a>

</div>

</div>

<div class="hub-content-wrap">

<a

href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-core-ports.html#dropdown-1-5-0" class="hub-toggle "><span class="hub-toggle-content">6.1. Unique Chip ID Intel® FPGA IP Core Ports</span></a>

</div>

</div>



```

    <div class="inpage-nav">
      <button class="btn-expand active" type="button" data-
target="#introduction" aria-expanded="true" aria-
controls="introduction"><span class="mobile-view-title">3.4.1. Creating IPS
File</span>
    </button>
  </div>
</div>
<div class="ude-documentation-details-desktop-navigation">
  <div class="filter-dropdown-search-wrapper component disabled" data-
component="wa_skip_track" data-component-id="1">
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search-label">
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id="documentation-details-search-id" aria-label="Search for filter" size="10"
placeholder="Search this document">
      <button class="btn-cancel-search" data-close="documentation-
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class="fa-cancel-1"></span></button>
    </label>
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<!--Dita code-->

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1-0"></button>
        <a
href="/content/www/us/en/docs/programmable/683865/current/fpga-
configuration-overview.html" class="">1. Intel® MAX® 10 FPGA Configuration
Overview</a>
      </div>

```

```

    <div class="section-content level-one collapse" id="chaptered-nav-
expand-content-dropdown-1-0" aria-expanded="false">

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    </div>
  </div>

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aria-expanded="false" aria-controls="chaptered-nav-expand-content-dropdown-1-1"><span class="btn-filter-dropdown-indicator"></span></button>
    <a
href="/content/www/us/en/docs/programmable/683865/current/fpga-configuration-schemes-and-features.html" class="">2. Intel® MAX® 10 FPGA Configuration Schemes and Features</a>
</div>
```

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        <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-schemes.html" class="">2.1. Configuration Schemes</a>
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```

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            <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-configuration.html" class="">2.1.1. JTAG Configuration</a>
        </div>
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href="/content/www/us/en/docs/programmable/683865/current/internal-
configuration.html" class="">2.1.2. Internal Configuration</a>

```

```

        </div>
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href="/content/www/us/en/docs/programmable/683865/current/internal-
configuration-modes.html"> 2.1.2.1. Internal Configuration Modes</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory.html" class="">2.1.2.2. Configuration Flash Memory</a>
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href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory-sectors.html"> 2.1.2.2.1. Configuration Flash Memory Sectors</a>
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href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory-programming-time.html"> 2.1.2.2.2. Configuration Flash Memory
Programming Time</a>
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href="/content/www/us/en/docs/programmable/683865/current/in-system-
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href="/content/www/us/en/docs/programmable/683865/current/isp-clamp.html">
2.1.2.3.1. ISP Clamp</a>
                        </li>
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```
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href="/content/www/us/en/docs/programmable/683865/current/real-time-
isp.html"> 2.1.2.3.2. Real-Time ISP</a>
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```
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href="/content/www/us/en/docs/programmable/683865/current/isp-and-real-
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                    </li>
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```

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                    <li class="collapsed"><a
href="/content/www/us/en/docs/programmable/683865/current/initialization-
configuration-bits.html"> 2.1.2.4. Initialization Configuration Bits</a></li>
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href="/content/www/us/en/docs/programmable/683865/current/internal-
configuration-time.html"> 2.1.2.5. Internal Configuration Time</a></li>
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href="/content/www/us/en/docs/programmable/683865/current/configuration-
features.html" class="">2.2. Configuration Features</a>
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class="btn-filter-dropdown-indicator"></span></button>
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href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade.html" class="">2.2.1. Remote System Upgrade</a>
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href="/content/www/us/en/docs/programmable/683865/current/remote-system-
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class="btn-filter-dropdown-indicator"></span></button>
                <a
href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade-circuitry.html" class="">2.2.1.2. Remote System Upgrade Circuitry</a>
        </div>
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href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade-circuitry-signals.html"> 2.2.1.2.1. Remote System Upgrade Circuitry
Signals</a>

                    </li>

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```

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href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade-circuitry-input.html"> 2.2.1.2.2. Remote System Upgrade Circuitry Input
Control</a>
          </li>
        </ul>

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```

        <ul class="links">
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href="/content/www/us/en/docs/programmable/683865/current/remote-system-
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Register</a>
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href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade-status-registers.html"> 2.2.1.2.4. Remote System Upgrade Status
Registers</a>
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href="/content/www/us/en/docs/programmable/683865/current/master-state-
machine.html"> 2.2.1.2.5. Master State Machine</a>
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```

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```

```

    <ul class="links">

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`<li class="collapsed"><a href="/content/www/us/en/docs/programmable/683865/current/user-watchdog-timer.html"> 2.2.1.3. User Watchdog Timer</a></li>`

`</ul>`

`<ul class="links">  
<li class="collapsed"><a href="/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-79122.html"> 2.2.1.4. Dual Configuration Intel® FPGA IP Core</a></li>`

`</ul>`

`</div>`

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`<a href="/content/www/us/en/docs/programmable/683865/current/configuration-design-security.html" class="">2.2.2. Configuration Design Security</a>`

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`<a href="/content/www/us/en/docs/programmable/683865/current/aes-encryption-protection.html" class="">2.2.2.1. AES Encryption Protection</a>`

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href="/content/www/us/en/docs/programmable/683865/current/encryption-and-
decryption.html"> 2.2.2.1.1. Encryption and Decryption</a>
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href="/content/www/us/en/docs/programmable/683865/current/unique-chip-
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```

```
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href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-
core-80250.html"> 2.2.2.2.1. Unique Chip ID Intel® FPGA IP Core</a>
                        </li>

                    </ul>
```

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```

```
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class="btn-filter-dropdown-indicator"></span></button>
```

```
                <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-
mode.html" class="">2.2.2.3. JTAG Secure Mode</a>
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href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-
mode-instructions.html"> 2.2.2.3.1. JTAG Secure Mode Instructions</a>
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```

```
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href="/content/www/us/en/docs/programmable/683865/current/verify-
protect.html"> 2.2.2.4. Verify Protect</a></li>
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```

```
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href="/content/www/us/en/docs/programmable/683865/current/jtag-instruction-
availability.html"> 2.2.2.5. JTAG Instruction Availability</a></li>
                </ul>
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class="btn-filter-dropdown-indicator"></span></button>
                <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory-permissions.html" class="">2.2.2.6. Configuration Flash Memory
Permissions</a>
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```
</div>
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href="/content/www/us/en/docs/programmable/683865/current/flash-region-
access-control-and-immutability.html"> 2.2.2.6.1. Flash Region Access Control
and Immutability</a>
    </li>
  </ul>
```

```
</div>
```

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</div>
```

```

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      <a
href="/content/www/us/en/docs/programmable/683865/current/seu-mitigation-
and-configuration-error.html" class="">2.2.3. SEU Mitigation and Configuration
Error Detection</a>
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```

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href="/content/www/us/en/docs/programmable/683865/current/configuration-
error-detection.html"> 2.2.3.1. Configuration Error Detection</a></li>
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```

```
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```

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class="btn-filter-dropdown-indicator"></span></button>
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href="/content/www/us/en/docs/programmable/683865/current/user-mode-error-
detection.html" class="">2.2.3.2. User Mode Error Detection</a>
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href="/content/www/us/en/docs/programmable/683865/current/error-detection-
block.html"> 2.2.3.2.1. Error Detection Block</a>
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```

```

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href="/content/www/us/en/docs/programmable/683865/current/change-edreg-
jtag-instruction.html"> 2.2.3.2.2. CHANGE_EDREG JTAG Instruction</a>
                    </li>
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expand-content-dropdown-4"><span
class="btn-filter-dropdown-indicator"></span></button>
                <a
href="/content/www/us/en/docs/programmable/683865/current/error-detection-
timing.html" class="">2.2.3.3. Error Detection Timing</a>
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```

- [2.2.3.3.1. Error Detection Frequency](/content/www/us/en/docs/programmable/683865/current/error-detection-frequency.html)

- [2.2.3.3.2. Cyclic Redundancy Check Calculation Timing](/content/www/us/en/docs/programmable/683865/current/cyclic-redundancy-check-calculation-timing.html)

</div>

- [2.2.3.4. Recovering from CRC Errors](/content/www/us/en/docs/programmable/683865/current/recovering-from-crc-errors.html)

</div>

- [2.2.4. Configuration Data Compression](/content/www/us/en/docs/programmable/683865/current/configuration-data-compression.html)

</div>

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2"><span class="btn-filter-dropdown-indicator"></span></button>
  <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
details.html" class="">2.3. Configuration Details</a>
</div>
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class="btn-filter-dropdown-indicator"></span></button>
    <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
sequence.html" class="">2.3.1. Configuration Sequence</a>
  </div>
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expand-content-dropdown-4"><span
class="btn-filter-dropdown-indicator"></span></button>
      <a
href="/content/www/us/en/docs/programmable/683865/current/power-up.html"
class="">2.3.1.1. Power-up</a>
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href="/content/www/us/en/docs/programmable/683865/current/por-monitored-
voltage-rails-for-single.html"> 2.3.1.1.1. POR Monitored Voltage Rails for Single-
supply and Dual-supply Intel® MAX® 10 Devices</a>
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href="/content/www/us/en/docs/programmable/683865/current/monitored-
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Supplies Ramp Time Requirement for Intel® MAX® 10 Devices</a>
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href="/content/www/us/en/docs/programmable/683865/current/configuration-
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href="/content/www/us/en/docs/programmable/683865/current/initialization.html
"> 2.3.1.4. Initialization</a></li>
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href="/content/www/us/en/docs/programmable/683865/current/user-
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<a href="/content/www/us/en/docs/programmable/683865/current/fpga-configuration-design-guidelines.html" class="">3. Intel® MAX® 10 FPGA Configuration Design Guidelines</a>

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Configuration Pin</a>
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href="/content/www/us/en/docs/programmable/683865/current/jtag-pin-sharing-
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href="/content/www/us/en/docs/programmable/683865/current/enabling-dual-
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devices-using-jtag-configuration.html" class="">>3.2. Configuring Intel® MAX®  
10 Devices using JTAG Configuration</a>

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configuration-files.html"> 3.2.1. Auto-Generating Configuration Files for Third-  
Party Programming Tools</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/generating-third-  
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%20generating-third-party-programming-files.html"> Generating Third-Party  
Programming Files using Intel® Quartus® Prime Programmer</a></li>

</ul>

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href="/content/www/us/en/docs/programmable/683865/current/jtag-  
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href="/content/www/us/en/docs/programmable/683865/current/icb-settings-in-  
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[3.3.2.2. Generating .pof using Convert Programming Files](/content/www/us/en/docs/programmable/683865/current/generating-pof-using-convert-programming.html)

[Generating Third-Party Programming Files using Intel® Quartus® Prime Programmer](/content/www/us/en/docs/programmable/683865/current/generating-third-party-programming-files%20generating-third-party-programming-files%20generating-third-party-programming-files-01.html)

[3.3.3. Programming .pof into Internal Flash](/content/www/us/en/docs/programmable/683865/current/programming-pof-into-internal-flash.html)

[3.4. Implementing ISP Clamp in Intel® Quartus® Prime Software](/content/www/us/en/docs/programmable/683865/current/implementing-isp-clamp-in-software.html)

3.4. Implementing ISP Clamp in Intel® Quartus® Prime Software

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href="/content/www/us/en/docs/programmable/683865/current/enabling-  
compression-before-design-.html"> 3.7.1. Enabling Compression Before Design  
Compilation</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/enabling-
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href="/content/www/us/en/docs/programmable/683865/current/aes-
encryption.html" class="">3.8. AES Encryption</a>
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href="/content/www/us/en/docs/programmable/683865/current/generating-ekp-
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Configuration File</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/generating-jam-
jbc-svf-file-from-ekp-file.html"> 3.8.2. Generating .jam/.jbc/.svf file from .ekp
file</a></li>

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Encrypted .pof Separately</a></li>
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href="/content/www/us/en/docs/programmable/683865/current/integrate-the-
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Programming</a></li>
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Example</a>
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href="/content/www/us/en/docs/programmable/683865/current/internal-and-
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href="/content/www/us/en/docs/programmable/683865/current/jtag-wysiwyg-
atom-for-jtag-control-block.html"> 3.9.2. JTAG WYSIWYG Atom for JTAG Control
Block Access Using Internal JTAG Interface</a></li>
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href="/content/www/us/en/docs/programmable/683865/current/executing-lock-
and-unlock-jtag-instructions.html"> 3.9.3. Executing LOCK and UNLOCK JTAG
Instructions</a></li>
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Configuration IP Core Implementation Guides</a>
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href="/content/www/us/en/docs/programmable/683865/current/instantiating-the-
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Core</a></li>

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unique-chip-id-core.html"> 4.1.2. Resetting the Unique Chip ID Intel® FPGA IP  
Core</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/dual-
configuration-core-references.html" class="">5. Dual Configuration Intel® FPGA
IP Core References</a>
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IP Core Avalon® Memory-Mapped Address Map</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/dual-
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href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-
core-references.html" class="">6. Unique Chip ID Intel® FPGA IP Core
References</a>
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href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-core-ports.html">6.1. Unique Chip ID Intel® FPGA IP Core Ports</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/document-
revision-history-for-the-fpga.html" class="">7. Document Revision History for
the Intel® MAX® 10 FPGA Configuration User Guide</a>
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[<span>View Details</span></a>](/content/www/us/en/secure/design/internal/content-details.html?DocID=)

</div>

## 3.4.1. Creating IPS File</h2> To create an <span class="ph filepath" id="hfr1472107352141\_\_d25331e142">.ips</span> file, perform the following steps: </p></div> - <span class="ph cmd" id="hfr1472107352141\_\_d25331e151">Click <span class="ph uicontrol" id="hfr1472107352141\_\_d25331e153">Programmer</span> on the toolbar, or on the <span class="ph uicontrol" id="hfr1472107352141\_\_d25331e156">Tools</span> menu, click <span class="ph uicontrol" id="hfr1472107352141\_\_d25331e159">Programmer</span> to open the <span class="keyword wintitle" id="hfr1472107352141\_\_d25331e162">Programmer</span>. </span> </li>- <span class="ph cmd" id="hfr1472107352141\_\_d25331e169">Click <span class="ph uicontrol" id="hfr1472107352141\_\_d25331e171">Add File</span> in the programmer to add the programming file (POF, Jam, or JBC). </span> </li>- <span class="ph cmd" id="hfr1472107352141\_\_d25331e178">Click on the programming file (highlights the entire row) and on the <span class="ph uicontrol" id="hfr1472107352141\_\_d25331e180">Edit</span> menu, click <span class="ph uicontrol" id="hfr1472107352141\_\_d25331e183">ISP CLAMP State Editor</span>. </span> </li>- <span class="ph cmd" id="hfr1472107352141\_\_d25331e190">Specify the states of the pins in your design in the <span class="ph uicontrol" id="hfr1472107352141\_\_d25331e192">ISP Clamp State Editor</span>. By default, all pins are set to <span class="ph uicontrol" id="hfr1472107352141\_\_d25331e195">tri-state</span>. </span> </li>- <span class="ph cmd" id="hfr1472107352141\_\_d25331e202">Click <span class="ph uicontrol" id="hfr1472107352141\_\_d25331e204">Save</span> to save IPS file after making the modifications.</span> </li></ol></div>

```

</div>
</div>
    <div class="modal fade modal-image" id="image-expand-modal"
tabindex="-1" role="dialog">
        <div class="modal-dialog">
            <div class="modal-content">
                <div class="modal-header">
                    <button type="button" class="close icon" data-dismiss="modal"
aria-label="Close">
                        <span></span></button>
                </div>
                <div class="modal-body"></div>
            </div>
        </div>
    </div>
</div>
<div class="ude-documentation-details-mobile-content-navigation">
    <a class="btn btn-secondary" href="#">
        <span>Level Two Title</span>
    </a>
</div>
<div class="ude-documentation-details-desktop-content-navigation">
    <a class="btn btn-tertiary previous"
href="/content/www/us/en/docs/programmable/683865/current/implementing-
isp-clamp-in-software.html"><span class="indicator"></span><span
class="copy">3.4. Implementing ISP Clamp in Intel® Quartus® Prime
Software</span></a>
    <a class="btn btn-tertiary next"
href="/content/www/us/en/docs/programmable/683865/current/executing-ips-
file.html"><span class="indicator"></span><span class="copy"> 3.4.2.
Executing IPS File</span></a>
</div>
</div>

    </div>
    <div class="feedbackTool container">

```

```

<script type="text/javascript">
    var intelFeedback = intelFeedback || {};
    intelFeedback.gtvLabels = {
        remainingText: 'Characters remaining',
        remainingTextOne: 'Character remaining',
        feedbackMessage: 'Feedback Sent'
    };
</script>

```



```

<section id="feedbackToolContainer" class="feedbackTool component" data-
component="coveo-feedback-modal" data-component-id="1" aria-
labelledby="fbc-title">
  <div class="fbc-header noselect" id="fbc-header" data-
wap_ref="close:feedback-modal" tabindex="0">
    <!-- icon -->
    <input type="hidden" id="errMissingResponse" value="Please answer at
least one question">
    <h2 class="fbc-title" id="fbc-title">
      <button aria-controls="fbc-body" aria-expanded="false" class="fbc-title-
btn" id="fbc-title-btn" type="button">
        
        <span class="fbc-title-label" id="fbc-title-label"> Give
Feedback</span>
      </button>
    </h2>

    <!-- close -->
    <button class="close fa-cancel-thin" aria-label="close feedback"
type="button" tabindex="0">
      <svg aria-hidden="true" class="close-icon" height="11" width="11"
viewBox="0 0 12 12">
        <line stroke="currentColor" stroke-width="1" x1="0" y1="0" x2="12"
y2="12"></line>
        <line stroke="currentColor" stroke-width="1" x1="0" y1="12"
x2="12" y2="0"></line>
      </svg>
    </button>
  </div>

  <!-- body -->
  <div class="fbc-body">

    <!-- question -->
    <div aria-labelledby="feedback-question" role="radiogroup" aria-
describedby="yesno-error" aria-required="true" id="fbc-question-div">
      <p class="fbc-question" id="feedback-question">
        Did you find the information on this page useful?
      </p>

      <!-- checkboxes -->
      <div class="fbc-checkboxes">
        <!-- yes -->

        <div id="yesno-yes-block" class="fbc-checkboxes-yes">
          <input id="yesno-yes" type="radio" name="yesno" value="1"
autocomplete="off">
          <label id="yesno-yes-label" for="yesno-yes" data-wap_ref="results-
delivered:yes">
            <span style="vertical-align: middle;">
              Yes
            </span>
          </label>
        </div>
      </div>
    </div>
  </div>

```

```

        </label>
    </div>

    <!-- no -->
    <div id="yesno-no-block" class="fbc-checkboxes-no">

        <input id="yesno-no" type="radio" name="yesno" value="0"
autocomplete="off">
        <label id="yesno-no-label" for="yesno-no" data-wap_ref="results-
delivered:no">

            <span style="vertical-align: middle;">
                No
            </span>
        </label>
    </div>

    <div class="fbc_yesno_error"><span id="yesno-error" aria-
live="polite"></span></div>
</div>

<!-- comments -->
<div class="fbc-comments">
    <!-- textarea -->
    <label class="fbc_comments_label" for="yesno-comment">
        <span>
            How could we improve the page?
        </span>
    </label>
    <textarea id="yesno-comment" name="yesno-comment" rows="5"
maxlength="500" autocomplete="off" aria-describedby="yesno-comment-
count"></textarea>

    <!-- character count -->
    <p id="yesno-comment-count" class="fbc-character-count">Characters
remaining: <span id="yesno-remaining-characters">500</span></p>
</div>

    <input type="hidden" id="errServerError" value="There was an error.
Please try again.">
    <!-- submit -->
    <div class="fbc-submit">
        <button type="button" id="fbc-submit" data-
wap="{&quot;message&quot;:&quot;message_not_added&quot;}" data-
wap_ref="feedback_modal_send">
            Send Feedback
        </button>
    </div>
    <div id="feedbackModal" class="feedbackmodal">
        <div class="feedbackmodal-content">
            <div class="fbc-feedbackheader">
                <p>Feedback Message</p>

```

```

    </div>
    <div class="feedbackmessage">
      <p aria-live="polite" id="feedbacksentmessage"></p>
    </div>
    <div class="fbc-submitok">
      <button type="button" id="fbc-submitok" aria-
hidden="true">Ok</button>
    </div>
  </div>
</div>

</section>
</div>

  </div>
</div>

<script src="https://cdnjs.cloudflare.com/ajax/libs/mathjax/2.7.1/MathJax.js?
config=TeX-MML-AM_CHTML" id=""></script>
<script
src="/etc.clientlibs/settings/wcm/clientlibs/ckeditor/resources/prism.js"></
script>

```

```
<div class="disclaimer parbase">
```

```
<div class="translationDisclaimer parbase">
```

</div>

</div>

<div class="helpModule getHelpComponent parbase">

<div id="getHelpComponent-1" class="component get-help-module"  
data-component="getHelpComponent" data-component-id="1">

```
<aside id="gethelp" class="right fixed-bottom hidden" role="dialog"
data-help-config-url="/libs/intel/get-help.us_en.default" style="display: none;">
  <div class="wrapper">
```

```
    <div class="navbar" aria-label="Get Help Dialog Header">
      <a name="gethelp_button" id="gethelp_button"></a>
```

```
      <button class="container-fluid navbar-toggler btn btn-primary
collapsed d-flex justify-content-between" type="button" data-toggle="collapse"
data-target="#gethelp-accordion" aria-controls="gethelp-accordion" aria-
expanded="false" aria-label="Get Help Dialog" data-btn-ref="get-help" data-
wap="" data-wap_ref="get-help-collapsed">
```

```
        <span class="navbar-toggler-icon-gethelp chat-icon icon align-icons
fa-user-headset" aria-hidden="true" title=""></span>
```

```
        <span id="gethelp-heading" class="navbar-toggler-title"
aria-hidden="true">Get Help</span>
```

```
        <span class="navbar-toggler-icon-close icon align-icons fa-
cancel-thin" aria-hidden="true" title="Close Get Help Dialog"></span>
```

```
      </button>
```

```
    </div>
```

```
    <ul id="gethelp-accordion" class="accordion panel-group
collapse" data-allow-toggle="" aria-label="Accordion">
      </ul>
```

```
  </div>
```

```
</aside>
```

```
</div>
```

```
  <link rel="stylesheet"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/get-
help.min.css" type="text/css"><script
src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/get-
help.min.js" defer=""></script>
```

```
</div>
```

```
</main>
```

```
<footer class="global blade solid brand-lighter-gray theme-light-2 component"
data-component-id="1" data-component="footer" role="contentinfo" data-
wap_type="wa_skip_track" id="skip-footer">
  <div class="container">
    <div class="content-footer">
      <div class="content">
```

```
        <ul class="footer-links">
```

```
          <li>
            <a
href="/content/www/us/en/company-overview/company-
overview.html">Company Overview</a>
          </li>
```

```
          <li>
            <a href="/content/www/us/en/support/contact-
intel.html">Contact Intel</a>
          </li>
```

```
          <li>
            <a
href="/content/www/us/en/newsroom/home.html">Newsroom</a>
          </li>
```

```
          <li>
            <a href="https://www.intc.com/">Investors</a>
          </li>
```

```
          <li>
            <a href="/content/www/us/en/jobs/jobs-at-
intel.html">Careers</a>
          </li>
```

```

        <li>
            <a
href="/content/www/us/en/corporate-responsibility/corporate-
responsibility.html">Corporate Responsibility</a>
        </li>

        <li>
            <a href="/content/www/us/en/diversity/diversity-at-
intel.html">Diversity & Inclusion</a>
        </li>

        <li>
            <a
href="/content/www/us/en/company-overview/public-policy.html">Public
Policy</a>
        </li>
    </ul>

```

```

<ul class="footer-links social">

    <li>
        <a href="https://www.facebook.com/Intel" target=""
aria-label="Intel on Facebook" data-
wap="{&quot;linktype&quot;:&quot;footersocial&quot;}">
            <i aria-hidden="true" class="fa-facebook"></i>
        </a>
    </li>

    <li>
        <a href="https://twitter.com/intel" target="" aria-
label="Intel on Twitter" data-
wap="{&quot;linktype&quot;:&quot;footersocial&quot;}">
            <i aria-hidden="true" class="fa-twitter"></i>
        </a>
    </li>

    <li>
        <a href="https://www.linkedin.com/company/intel-
corporation" target="" aria-label="Intel on LinkedIn" data-
wap="{&quot;linktype&quot;:&quot;footersocial&quot;}">
            <i aria-hidden="true" class="fa-linkedin"></i>
        </a>
    </li>

    <li>

```

```

                <a href="https://www.youtube.com/user/channelintel?
sub_confirmation=1" target="" aria-label="Intel on YouTube" data-
wap="{&quot;linktype&quot;:&quot;footersocial&quot;}">
                <i aria-hidden="true" class="fa-youtube"></i>
            </a>
        </li>

```

```

        <li>
            <a href="https://www.instagram.com/intel/" target=""
aria-label="Intel on Instagram" data-
wap="{&quot;linktype&quot;:&quot;footersocial&quot;}">
                <i aria-hidden="true" class="fa-instagram"></i>
            </a>
        </li>

```

```

    </ul>

```

```

        <ul class="footer-links secondary-links"
id="footerSecondaryLinks">

```

```

            <li>

```

```

                <small>© Intel Corporation</small>

```

```

            </li>

```

```

            <li>

```

```

                <a href="/content/www/us/en/legal/terms-of-
use.html">

```

```

                    <small>Terms of Use</small>
                </a>

```

```

            </li>

```

```

            <li>

```



[<a href="/content/www/us/en/legal/trademarks.html">  
<small>\\*Trademarks</small>  
</a>](/content/www/us/en/legal/trademarks.html)

</li>

<li>

[<a href="/content/www/us/en/privacy/intel-cookie-notice.html" data-cookie-notice="true">  
<small>Cookies</small>  
</a>](/content/www/us/en/privacy/intel-cookie-notice.html)

</li>

<li>

[<a href="/content/www/us/en/privacy/intel-privacy-notice.html">  
<small>Privacy</small>  
</a>](/content/www/us/en/privacy/intel-privacy-notice.html)

</li>

<li>

[<a href="/content/www/us/en/corporate-responsibility/statement-combating-modern-slavery.html">](/content/www/us/en/corporate-responsibility/statement-combating-modern-slavery.html)  
Supply Chain Transparency  
</small>  
</a>

</li>

<li>

[<a href="/content/www/us/en/siteindex.html">](/content/www/us/en/siteindex.html)  
Site Map</small>  
</a>

</li>

</ul>

<div class="footer-disclaimer">  
<p>Intel technologies may require enabled hardware, software or service activation. // No product or component can be absolutely secure. // Your costs and results may vary. // Performance varies by use, configuration and other factors. // See our complete legal <a href="https://edc.intel.com/content/www/us/en/products/performance/benchmarks/overview/#GUID-26B0C71C-25E9-477D-9007-52FCA56EE18C">Notices and Disclaimers</a></u>. // Intel is committed to respecting human rights and avoiding complicity in human rights abuses. See Intel's

</div>

</div>  
<div class="logo-container">

```
        <a href="/content/www/us/en/homepage.html" class="footer-logo-
rebrand" aria-label="Intel Footer Logo" title="Intel Footer Logo">
            
        </a>
    </div>
</div>
</div>
</footer>
```

```
<textarea id="defers" title="" style="display:none;">
    &lt;script&gt;var isTargetEnabled =false;&lt;/script&gt;
```

```
<script type="text/javascript">
  var cq_tms = {
    wa_emtcontenttype:
"emtcontenttype:designanddevelopmentreference/developerguide/developeruse
rguide",
    wa_primarycontenttagging:
"primarycontenttagging:intelfpgas/intelprogrammabledevices,primarycontenttag
ging:intelfpgas/intelprogrammabledevices/intelmax/
intelmax10fpgas,primarycontenttagging:intelfpgas/
intelfpgaintellectualproperty/basicfunctions",
    wa_curated: "curated:donotuseinexternalfilters/recommended",
    wa_emtsubject: "emtsubject:design/fpgadesign/remotesystemupgrades",

    wa_industry_type: "",
    wa_partner_prog: "",
    wa_subject: "",
    wa_biz_size: "",
    wa_emt_org: "",
    wa_emt_intel: "",
    wa_partner_type: "",
    wa_programidentifier: "",
    wa_location: "us",
    wa_language: "en",
    wa_english_title: "3.4.1. Creating IPS File",
    wa_content_type: "",
    wa_intel_platform: "",
    wa_applications: "",
    wa_local: "en_US",
    wa_intel_technology: "",
    wa_system_type: "",
    wa_product_name: "",
    wa_audience:
"emtaudience:business/btssbusiness technologysolutionspecialist/developer/
fpgaengineer",
    wa_life_cycle: "",
    wa_cq_url:
"/content/www/us/en/docs/programmable/683865/current/creating-ips-file.html",
```

```
wa_page_type_micro: "udeDocumentationDetail",
wa_env: "prd",
wa_cq_pub_env: "publish",
wa_transl_status: "",
wa_product_id: "98847,216704,216704,215648",
wa_software: "",
wa_reference_design: "",
wa_codename: "",
wa_created_date: "1639788876744",
wa_modified_date: "1639788876752",
wa_off_time: "1924992000000",
wa_ownedby: "",
wa_managedby: "",
wa_idz_nid : "",
wa_event_type: "",
wa_idz_custom_tags: "",
wa_programming_language: "",
wa_skill_level: "",
wa_solution: "",
wa_product_formFactor: "",
wa_operating_system: "",
wa_marketing_products: "",
wa_ssg_third_party_prod_sys_sol: "",
wa_upeNamespace: "",
wa_doc_id:"683865",
wa_doc_version:"current",
wa_doc_publishdate:"5/26/2022",
```

```
wa_secondary_content_type:
"emtcontenttype:designanddevelopmentreference/developerguide/developeruse
rguide"
```

```
};
```

```
cq_tms.wa_tms_sync_load = "deferred";
```

```
</script>
```

```
<script type="text/javascript">
    var chatContextObj = {};
    chatContextObj["locale"] = 'en-US';
    chatContextObj["app"] = 'PSG';
    chatContextObj["supportProductMap"] = 'NA';
</script>
<script src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/
detect-idsa.min.js" defer></script>
```

```
<script type="text/javascript"
src="/content/dam/www/global/wap/tms.sync.js" async></script>
```

```
<link rel="stylesheet"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
commons-page.min.css" type="text/css"><script
src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
commons-page.min.js" defer></script>
```

```
<script>!function(){var e=setInterval(function(){"undefined"!=typeof
$CQ&amp;&($CQ(function(){CQ_Analytics.SegmentMgr.loadSegments("/
etc/segmentation"),CQ_Analytics.ClientContextUtils.init("/etc/clientcontext/
intel",window.location.pathname.substr(0,window.location.pathname.indexOf("."))
})),clearInterval(e))},100)}();</script>
```

```
<link rel="preload" as="style"
href="/etc.clientlibs/settings/wcm/designs/intel/us/en/css/resources/css/
intel.rwd.override.css"/>
<link rel="stylesheet" type="text/css"
href="/etc.clientlibs/settings/wcm/designs/intel/us/en/css/resources/css/
intel.rwd.override.css"/>
```

</textarea>

```
<noscript>&lt;img src="https://www.intel.com/akam/13/pixel_2a97035e?
a=dD1iZTE0MGE0MTc2YzY0YjFjZWJkNTQ1OTdiMzljOWUwZGZiZDI1NTk5JmpzPW9
mZg==" style="visibility: hidden; position: absolute; left: -999px; top: -
999px;" /&gt;</noscript><script type="text/javascript"
src="/4Tl6oV/d0a/Oc_/BmKDO5_/5J5hcNmz/Wh86Cj0C/Brt3/bhA9GSM"></script
>
```

```
<div id="onSiteonRTag"></div><iframe sandbox="allow-scripts allow-same-
origin" title="Adobe ID Syncing iFrame"
id="destination_publishing_iframe_intelcorp_3"
name="destination_publishing_iframe_intelcorp_3_name"
src="https://intelcorp.demdex.net/dest5.html?d_nsid=3#https%3A%2F
%2Fwww.intel.com" class="aamIframeLoaded" style="display: none; width: 0px;
height:
0px;"></iframe><script>clearTimeout(onsTimerB);window.ONS_getAMC=function()
{var amc=((typeof utag_data!='undefined'&&typeof
utag_data['wa_amc_id']!='undefined')?utag_data['wa_amc_id']: '');if(amc=='')
{var ck=dD.cookie.split(';');for(var i=0;i<ck.length;i++)
{ck[i]=ck[i].trim();if(ck[i].indexOf('AMCV_')==0&&ck[i].indexOf('AdobeOrg=')!=-
1){amc=ONS_gCookie(ck[i].split('=')[0]);break;}}if(amc!='')
{ck=amc.split('|');amc="";for(var i=0;i<ck.length;i++)
{if(ck[i]=='MCMID'&&(i+1)<ck.length){amc=ck[i+1];}}}}return
amc;};window.ONS_getPBVS=function(c){return
c+'sid='+onsUSID+'&uid='+onsUUID+'&gid='+ONS_gCookie('gawap')
+'&mid='+ONS_gCookie('wa_visitId')
+'&aid='+ONS_getAMC();};window.ONS_retryAMC=function(c){var
amc=ONS_getAMC();if(amc=='&&c<10){setTimeout(function()
{ONS_retryAMC(c+1);},500);}else{onsTimerB=setTimeout(function()
{ONS_initCore(false);},3000);onsPBVS='?s='+onsCSTG+ONS_getPBVS('&')
+'&geo='+onsKey+'&f='+encodeURIComponent(onsRURL)
+'&r='+encodeURIComponent(onsCURL)
+'&retry=1';ONS_XMLHttpRequest(onsPATH+ONS_getCoreScript()
+onsPBVS);}};window.ONS_checkOptOut=function()
{onXdr=null;onXhr=null;if(typeof XDomainRequest!='undefined')
{try{onXdr=new XDomainRequest();}catch(e){onXdr=null;}}else
if(window.XMLHttpRequest){try{onXhr=new
XMLHttpRequest();if(!'withCredentials'in onXhr)onXhr=null;}catch(e)
{onXhr=null;}}if(onXhr){onXhr.onreadystatechange=function()
{if(onXhr.readyState==4&&onXhr.status==200){if(onXhr.responseText=="Opt-
out")
{ONS_sCookie(cn+'STG','6',onsCookieExp,ch);}else{ONS_retryAMC(0);}}else
if(onXhr.readyState==4){ONS_retryAMC(0);}};onXhr.open('GET','https://
onsite.onrcx.com/
optoutcookie.asp',true);onXhr.withCredentials=true;onXhr.send(null);}else
if(onXdr){onXdr.open('GET','https://onsite.onrcx.com/optoutcookie.asp');onXdr.o
nprogress=function(){};onXdr.ontimeout=function(){};onXdr.onerror=function()
{};onXdr.onload=function(){if(onXdr.responseText=="Opt-out")
{ONS_sCookie(cn+'STG','6',onsCookieExp,ch);}else{ONS_retryAMC(0);}};setTim
eout(function(){onXdr.send();},0);}};ONS_retryAMC(0);</script></body></
html>
```

```
<html class="rwd geo-override vis no-rtl headerfooter-menu3 js flexbox
flexboxlegacy canvas canvastext webgl touch geolocation postmessage no-
websql database indexeddb hashchange history draganddrop websockets rgba
hsla multiplebgs backgroundsize borderimage borderradius boxshadow
textshadow opacity cssanimations csscolumns cssgradients cssreflections
csstransforms csstransforms3d csstransitions fontface generatedcontent video
audio localStorage sessionStorage webworkers applicationcache svg inlinesvg
smil svgclippaths overthrow-enabled mobile iphone smallscreen ios ios15_6
ios15 safari safari15 webkit no-desktop portrait no-ipad no-ipod appleios"
lang="en" style="opacity: 1;"><head class="at-element-marker">
  <meta charset="UTF-8">
```

<title>3.4.2. Executing IPS File</title>

```
<link rel="preconnect" href="//dpm.demdex.net/" crossorigin="">
<link rel="dns-prefetch" href="//dpm.demdex.net/">
<link rel="preconnect" href="//starget.intel.com/">
<link rel="dns-prefetch" href="//starget.intel.com/">
<link rel="preconnect" href="//elqtrk.intel.com/">
<link rel="dns-prefetch" href="//elqtrk.intel.com/">
<link rel="dns-prefetch" href="//onsite2.researchintel.com/">
<link rel="preconnect" href="//tags.tiqcdn.com/" crossorigin="">
<link rel="dns-prefetch" href="//tags.tiqcdn.com/">
<link rel="preconnect" href="//www91.intel.com/">
<link rel="dns-prefetch" href="//www91.intel.com/">
```

```
  <link rel="preload" href="/content/dam/www/global/wap/performance-
config.js" as="script" type="text/javascript">
  <script src="//tms-global.intel.com/profile-cq.asmo-na/prod/utag.js"
type="text/javascript" async=""></script><script type="text/javascript"
src="/content/dam/www/global/wap/performance-config.js"></script>
  <link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/global/
targetDataCookie.min.js" as="script" type="text/javascript">
  <script src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/global/
targetDataCookie.min.js"></script>
```



```
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
nav.min.css" as="style" type="text/css">
```

```
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intelone-display-regular.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intelone-display-medium.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intel-clear-latin.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intel-clear-latin-bold.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intel-clear-latin-italic.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intelone-display-bold.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intelone-display-light.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/site-
global-icons/resources/font/site-global-icons.woff2?16701488" as="font"
type="font/woff2" crossorigin="true">
```

```
<meta http-equiv="X-UA-Compatible" content="IE=Edge">
```

```
<!--[if lte IE 9]>
<meta http-equiv="X-UA-Compatible" content="IE=9"/>
<![endif]-->
```

```
<meta name="twitter:card" content="summary">
```

```
<meta name="keywords" content="">
```

```
<meta name="item_id"
content="/content/www/us/en/docs/programmable/683865/current/executing-
ips-file">
```

```
<meta name="description" content="">
```

```
<meta name="language" content="en">
```

```
<meta name="book_id" content="683865">
```

```
<meta name="twitter:image"
content="https://www.intel.com/content/dam/logos/logo-energyblue-1x1.png">
```

```
<meta name="partnum" content="UG-M10CONFIG">
```

```
<meta name="parent_id" content="666495">
```

```
<meta name="revision_date" content="5/26/2022">
```

```
<meta name="location" content="us">
```

```
<meta name="robots" content="follow,index,noarchive">
```

```
<meta name="X-Server" content="INTE-T1">
```

```
<meta property="og:image"
content="https://www.intel.com/etc/clientlibs/settings/wcm/designs/intel/us/en/
images/resources/printlogo.png">
```

```
<meta property="og:type" content="company">
```

```
<meta property="og:site_name" content="Intel">
```

```
<meta property="og:title" content="3.4.2. Executing IPS File">
```

```
<meta property="fb:admins" content="267985180046218">
```

```
<meta property="og:url"
content="https://www.intel.com/content/www/us/en/docs/programmable/
683865/current/executing-ips-file.html">
```

```
<meta property="og:description" content="">
```

```
<meta http-equiv="content-type" content="text/html; charset=utf-8">
```

<meta name="emtcontenttype" content="Content Type|Design and Development Reference|Development Guides|Development User Guides;Content Type|Design and Development Reference|Development Guides|Development User Guides;">

<meta name="contentpath" content="/content/www/us/en/docs/programmable/683865/current/executing-ips-file">

<meta name="authoreddate" content="">

<meta name="localecode" content="en\_US">

<meta name="reimaginelevelcategory" content="Audience|Business|Technical Decision Maker (TDM)|Developer|FPGA Engineer;">

<meta name="mime" content="text/html">

<meta name="format" content="udeDocumentationDetail">

<meta name="excludefromviews" content="false">

<meta name="taxonomy" content="etm-7F4D4D11-85BF-4ACF-A305-3D077F78760B;etm-7a535fe38d6c4b1aa9749d79c0a2c89d;etm-a065764d12404422a4010b8396828f63;etm-83741EA4-0466-4A89-9395-C861EDA3D38B;etm-83741EA4-0466-4A89-9395-C861EDA3D38B;etm-74fc3401b6764c42ad8255f4feb9bd9e;etm-562F15FC-A2B4-4AC9-AE56-12E106ADD48F;etm-d370f01035d54b9a8dc4f13a6e3665e4;">

<meta name="title" content="3.4.2. Executing IPS File">

<meta name="menu" content="">

<meta name="emtsubject" content="Subject|Design|FPGA Design|Remote System Upgrades;">

<meta name="reimaginefilters" content="Primary Content Tagging|Intel® FPGAs|Intel® Programmable Devices|Intel® MAX®|Intel® MAX® 10 FPGAs;Subject|Design|FPGA Design|Remote System Upgrades;Curated|DO NOT USE IN EXTERNAL FILTERS|Recommended;Primary Content Tagging|Intel® FPGAs|Intel® Programmable Devices;Primary Content Tagging|Intel® FPGAs|Intel® Programmable Devices;Content Type|Design and Development Reference|Development Guides|Development User Guides;Primary Content Tagging|Intel® FPGAs|Intel® FPGA Intellectual Property|Basic Functions;">

<meta name="generic1" content="true">

<meta name="emtaudience" content="Audience|Business|Technical Decision Maker (TDM)|Developer|FPGA Engineer;">

<meta name="intelkeywords" content="">

<meta name="lastModifieddate" content="">

```
<meta name="thumbnailurl" content="">
```

```
<meta name="viewport" content="width=device-width, initial-scale=1.0">
```

```
<link rel="icon" type="image/png" sizes="32x32"  
href="/etc.clientlibs/settings/wcm/designs/intel/default/resources/favicon-  
32x32.png">  
<link rel="icon" type="image/png" sizes="16x16"  
href="/etc.clientlibs/settings/wcm/designs/intel/default/resources/favicon-  
16x16.png">  
<link rel="shortcut icon"  
href="/etc.clientlibs/settings/wcm/designs/intel/default/resources/favicon.ico">
```

```
<link rel="canonical"  
href="https://www.intel.com/content/www/us/en/docs/programmable/683865/  
current/executing-ips-file.html">  
<link rel="alternate" hreflang="ja-jp"  
href="https://www.intel.co.jp/content/www/jp/ja/docs/programmable/683865/  
current/executing-ips-file.html">  
    <link rel="alternate" hreflang="zh-cn"  
href="https://www.intel.cn/content/www/cn/zh/docs/programmable/683865/  
current/executing-ips-file.html">  
    <link rel="alternate" hreflang="en-us"  
href="https://www.intel.com/content/www/us/en/docs/programmable/683865/  
current/executing-ips-file.html">  
    <link rel="alternate" hreflang="x-default"  
href="https://www.intel.com/content/www/us/en/docs/programmable/683865/  
current/executing-ips-file.html">
```

```
<style>  
@-ms-viewport{width:device-width;}  
  
</style>
```

```
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/intc-
core.min.css" as="style"><link rel="stylesheet"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/intc-
core.min.css" type="text/css"><script
src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/intc-
core.min.js" defer=""></script>
```

```
<script
src="https://cdnjs.cloudflare.com/ajax/libs/clipboard.js/2.0.0/clipboard.min.js"></
script><style type="text/css">.MathJax_Hover_Frame {border-radius: .25em; -
webkit-border-radius: .25em; -moz-border-radius: .25em; -khtml-border-
radius: .25em; box-shadow: 0px 0px 15px #83A; -webkit-box-shadow: 0px 0px
15px #83A; -moz-box-shadow: 0px 0px 15px #83A; -khtml-box-shadow: 0px 0px
15px #83A; border: 1px solid #A6D ! important; display: inline-block; position:
absolute}
.MathJax_Menu_Button .MathJax_Hover_Arrow {position: absolute; cursor:
pointer; display: inline-block; border: 2px solid #AAA; border-radius: 4px; -
webkit-border-radius: 4px; -moz-border-radius: 4px; -khtml-border-radius: 4px;
font-family: 'Courier New',Courier; font-size: 9px; color: #F0F0F0}
.MathJax_Menu_Button .MathJax_Hover_Arrow span {display: block; background-
color: #AAA; border: 1px solid; border-radius: 3px; line-height: 0; padding: 4px}
.MathJax_Hover_Arrow:hover {color: white!important; border: 2px solid #CCC!
important}
.MathJax_Hover_Arrow:hover span {background-color: #CCC!important}
</style><style type="text/css">#MathJax_About {position: fixed; left: 50%;
width: auto; text-align: center; border: 3px outset; padding: 1em 2em;
background-color: #DDDDDD; color: black; cursor: default; font-family: message-
box; font-size: 120%; font-style: normal; text-indent: 0; text-transform: none;
line-height: normal; letter-spacing: normal; word-spacing: normal; word-wrap:
normal; white-space: nowrap; float: none; z-index: 201; border-radius: 15px; -
webkit-border-radius: 15px; -moz-border-radius: 15px; -khtml-border-radius:
15px; box-shadow: 0px 10px 20px #808080; -webkit-box-shadow: 0px 10px
20px #808080; -moz-box-shadow: 0px 10px 20px #808080; -khtml-box-shadow:
0px 10px 20px #808080; filter:
progid:DXImageTransform.Microsoft.dropshadow(OffX=2, OffY=2, Color='gray',
Positive='true')}
#MathJax_About.MathJax_MousePost {outline: none}
.MathJax_Menu {position: absolute; background-color: white; color: black; width:
auto; padding: 5px 0px; border: 1px solid #CCCCC; margin: 0; cursor: default;
font: menu; text-align: left; text-indent: 0; text-transform: none; line-height:
normal; letter-spacing: normal; word-spacing: normal; word-wrap: normal; white-
space: nowrap; float: none; z-index: 201; border-radius: 5px; -webkit-border-
radius: 5px; -moz-border-radius: 5px; -khtml-border-radius: 5px; box-shadow:
0px 10px 20px #808080; -webkit-box-shadow: 0px 10px 20px #808080; -moz-
box-shadow: 0px 10px 20px #808080; -khtml-box-shadow: 0px 10px 20px
#808080; filter: progid:DXImageTransform.Microsoft.dropshadow(OffX=2,
OffY=2, Color='gray', Positive='true')}
.MathJax_MenuItem {padding: 1px 2em; background: transparent}
```

```

.MathJax_MenuArrow {position: absolute; right: .5em; padding-top: .25em; color:
#666666; font-size: .75em}
.MathJax_MenuActive .MathJax_MenuArrow {color: white}
.MathJax_MenuArrow.RTL {left: .5em; right: auto}
.MathJax_MenuCheck {position: absolute; left: .7em}
.MathJax_MenuCheck.RTL {right: .7em; left: auto}
.MathJax_MenuRadioCheck {position: absolute; left: .7em}
.MathJax_MenuRadioCheck.RTL {right: .7em; left: auto}
.MathJax_MenuLabel {padding: 1px 2em 3px 1.33em; font-style: italic}
.MathJax_MenuRule {border-top: 1px solid #DDDDDD; margin: 4px 3px}
.MathJax_MenuDisabled {color: GrayText}
.MathJax_MenuActive {background-color: #606872; color: white}
.MathJax_MenuDisabled:focus, .MathJax_MenuLabel:focus {background-color:
#E8E8E8}
.MathJax_ContextMenu:focus {outline: none}
.MathJax_ContextMenu .MathJax_MenuItem:focus {outline: none}
#MathJax_AboutClose {top: .2em; right: .2em}
.MathJax_Menu .MathJax_MenuClose {top: -10px; left: -10px}
.MathJax_MenuClose {position: absolute; cursor: pointer; display: inline-block;
border: 2px solid #AAA; border-radius: 18px; -webkit-border-radius: 18px; -moz-
border-radius: 18px; -khtml-border-radius: 18px; font-family: 'Courier
New',Courier; font-size: 24px; color: #F0F0F0}
.MathJax_MenuClose span {display: block; background-color: #AAA; border:
1.5px solid; border-radius: 18px; -webkit-border-radius: 18px; -moz-border-
radius: 18px; -khtml-border-radius: 18px; line-height: 0; padding: 8px 0 6px}
.MathJax_MenuClose:hover {color: white!important; border: 2px solid #CCC!
important}
.MathJax_MenuClose:hover span {background-color: #CCC!important}
.MathJax_MenuClose:hover:focus {outline: none}
</style><style type="text/css">.MathJax_Preview .MJXf-math {color: inherit!
important}
</style><style type="text/css">.MJX_Assistive_MathML {position: absolute!
important; top: 0; left: 0; clip: rect(1px, 1px, 1px, 1px); padding: 1px 0 0 0!
important; border: 0!important; height: 1px!important; width: 1px!important;
overflow: hidden!important; display: block!important; -webkit-touch-callout:
none; -webkit-user-select: none; -khtml-user-select: none; -moz-user-select:
none; -ms-user-select: none; user-select: none}
.MJX_Assistive_MathML.MJX_Assistive_MathML_Block {width: 100%!important}
</style><style type="text/css">#MathJax_Zoom {position: absolute;
background-color: #F0F0F0; overflow: auto; display: block; z-index: 301;
padding: .5em; border: 1px solid black; margin: 0; font-weight: normal; font-
style: normal; text-align: left; text-indent: 0; text-transform: none; line-height:
normal; letter-spacing: normal; word-spacing: normal; word-wrap: normal; white-
space: nowrap; float: none; -webkit-box-sizing: content-box; -moz-box-sizing:
content-box; box-sizing: content-box; box-shadow: 5px 5px 15px #AAAAAA; -
webkit-box-shadow: 5px 5px 15px #AAAAAA; -moz-box-shadow: 5px 5px 15px
#AAAAAA; -khtml-box-shadow: 5px 5px 15px #AAAAAA; filter:
progid:DXImageTransform.Microsoft.dropshadow(OffX=2, OffY=2, Color='gray',
Positive='true')}
#MathJax_ZoomOverlay {position: absolute; left: 0; top: 0; z-index: 300; display:
inline-block; width: 100%; height: 100%; border: 0; padding: 0; margin: 0;
background-color: white; opacity: 0; filter: alpha(opacity=0)}
#MathJax_ZoomFrame {position: relative; display: inline-block; height: 0; width:
0}

```

```

#MathJax_ZoomEventTrap {position: absolute; left: 0; top: 0; z-index: 302;
display: inline-block; border: 0; padding: 0; margin: 0; background-color: white;
opacity: 0; filter: alpha(opacity=0)}
</style><style type="text/css">.MathJax_Preview {color: #888}
#MathJax_Message {position: fixed; left: 1px; bottom: 2px; background-color:
#E6E6E6; border: 1px solid #959595; margin: 0px; padding: 2px 8px; z-index:
102; color: black; font-size: 80%; width: auto; white-space: nowrap}
#MathJax_MSIE_Frame {position: absolute; top: 0; left: 0; width: 0px; z-index:
101; border: 0px; margin: 0px; padding: 0px}
.MathJax_Error {color: #CC0000; font-style: italic}
</style><script>var isTargetEnabled =false;</script><script>
  var cq_tms = {
    wa_emtcontenttype:
"emtcontenttype:designanddevelopmentreference/developerguide/developeruse
rguide",
    wa_primarycontenttagging:
"primarycontenttagging:intelfpgas/intelprogrammabledevices,primarycontenttag
ging:intelfpgas/intelprogrammabledevices/intelmax/
intelmax10fpgas,primarycontenttagging:intelfpgas/
intelfpgaintellectualproperty/basicfunctions",
    wa_curated: "curated:donotuseinexternalfilters/recommended",
    wa_emtsubject: "emtsubject:design/fpgadesign/remotesystemupgrades",

    wa_industry_type: "",
    wa_partner_prog: "",
    wa_subject: "",
    wa_biz_size: "",
    wa_emt_org: "",
    wa_emt_intel: "",
    wa_partner_type: "",
    wa_programidentifier: "",
    wa_location: "us",
    wa_language: "en",
    wa_english_title: "3.4.2. Executing IPS File",
    wa_content_type: "",
    wa_intel_platform: "",
    wa_applications: "",
    wa_local: "en_US",
    wa_intel_technology: "",
    wa_system_type: "",
    wa_product_name: "",
    wa_audience:
"emtaudience:business/btssbusnesstechnologysolutionspecialist/developer/
fpgaengineer",
    wa_life_cycle: "",
    wa_cq_url:
"/content/www/us/en/docs/programmable/683865/current/executing-ips-
file.html",
    wa_page_type_micro: "udeDocumentationDetail",
    wa_env: "prd",
    wa_cq_pub_env: "publish",
    wa_transl_status: "",
    wa_product_id: "98847,216704,216704,215648",
    wa_software: "",

```

```
wa_reference_design: "",
wa_codename: "",
wa_created_date: "1639788877021",
wa_modified_date: "1639788877029",
wa_off_time: "1924992000000",
wa_ownedby: "",
wa_managedby: "",
wa_idz_nid : "",
wa_event_type: "",
wa_idz_custom_tags: "",
wa_programming_language: "",
wa_skill_level: "",
wa_solution: "",
wa_product_formFactor: "",
wa_operating_system: "",
wa_marketing_products: "",
wa_ssg_third_party_prod_sys_sol: "",
wa_upNamespace: "",
wa_doc_id:"683865",
wa_doc_version:"current",
wa_doc_publishdate:"5/26/2022",
```

```
wa_secondary_content_type:
"emtcontenttype:designanddevelopmentreference/developerguide/developeruse
rguide"
```

```
};
```

```
cq_tms.wa_tms_sync_load = "deferred";
```

```
</script><script>
var chatContextObj = {};
chatContextObj["locale"] = 'en-US';
chatContextObj["app"] = 'PSG';
chatContextObj["supportProductMap"] = 'NA';
</script><script>!function(){var e=setInterval(function(){if(typeof
$CQ&&($CQ(function(){CQ_Analytics.SegmentMgr.loadSegments("/etc/segmenta
tion"),CQ_Analytics.ClientContextUtils.init("/etc/clientcontext/
intel",window.location.pathname.substr(0,window.location.pathname.indexOf("."))
})),clearInterval(e)}),100)}();</script><link rel="stylesheet" type="text/css"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
commons-page.min.css"><link rel="stylesheet" type="text/css"
href="/etc.clientlibs/settings/wcm/designs/intel/us/en/css/resources/css/
intel.rwd.override.css"><link rel="stylesheet" type="text/css"
href="/etc.clientlibs/settings/wcm/designs/intel/us/en/css/resources/css/
intel.rwd.override.css"><style type="text/css">.MJXp-script {font-size: .8em}
.MJXp-right {-webkit-transform-origin: right; -moz-transform-origin: right; -ms-
transform-origin: right; -o-transform-origin: right; transform-origin: right}
```



```

.MJXp-bold {font-weight: bold}
.MJXp-italic {font-style: italic}
.MJXp-scr {font-family: MathJax_Script,'Times New
Roman',Times,STIXGeneral,serif}
.MJXp-frak {font-family: MathJax_Frakture,'Times New
Roman',Times,STIXGeneral,serif}
.MJXp-sf {font-family: MathJax_SansSerif,'Times New
Roman',Times,STIXGeneral,serif}
.MJXp-cal {font-family: MathJax_Caligraphic,'Times New
Roman',Times,STIXGeneral,serif}
.MJXp-mono {font-family: MathJax_Typewriter,'Times New
Roman',Times,STIXGeneral,serif}
.MJXp-largeop {font-size: 150%}
.MJXp-largeop.MJXp-int {vertical-align: -.2em}
.MJXp-math {display: inline-block; line-height: 1.2; text-indent: 0; font-family:
'Times New Roman',Times,STIXGeneral,serif; white-space: nowrap; border-
collapse: collapse}
.MJXp-display {display: block; text-align: center; margin: 1em 0}
.MJXp-math span {display: inline-block}
.MJXp-box {display: block!important; text-align: center}
.MJXp-box:after {content: " "}
.MJXp-rule {display: block!important; margin-top: .1em}
.MJXp-char {display: block!important}
.MJXp-mo {margin: 0 .15em}
.MJXp-mfrac {margin: 0 .125em; vertical-align: .25em}
.MJXp-denom {display: inline-table!important; width: 100%}
.MJXp-denom > * {display: table-row!important}
.MJXp-surd {vertical-align: top}
.MJXp-surd > * {display: block!important}
.MJXp-script-box > * {display: table!important; height: 50%}
.MJXp-script-box > * > * {display: table-cell!important; vertical-align: top}
.MJXp-script-box > *:last-child > * {vertical-align: bottom}
.MJXp-script-box > * > * > * {display: block!important}
.MJXp-mphantom {visibility: hidden}
.MJXp-munderover {display: inline-table!important}
.MJXp-over {display: inline-block!important; text-align: center}
.MJXp-over > * {display: block!important}
.MJXp-munderover > * {display: table-row!important}
.MJXp-mtable {vertical-align: .25em; margin: 0 .125em}
.MJXp-mtable > * {display: inline-table!important; vertical-align: middle}
.MJXp-mtr {display: table-row!important}
.MJXp-mtd {display: table-cell!important; text-align: center; padding: .5em 0
0 .5em}
.MJXp-mtr > .MJXp-mtd:first-child {padding-left: 0}
.MJXp-mtr:first-child > .MJXp-mtd {padding-top: 0}
.MJXp-mlabeledtr {display: table-row!important}
.MJXp-mlabeledtr > .MJXp-mtd:first-child {padding-left: 0}
.MJXp-mlabeledtr:first-child > .MJXp-mtd {padding-top: 0}
.MJXp-merror {background-color: #FFFF88; color: #CC0000; border: 1px solid
#CC0000; padding: 1px 3px; font-style: normal; font-size: 90%}
.MJXp-scale0 {-webkit-transform: scaleX(.0); -moz-transform: scaleX(.0); -ms-
transform: scaleX(.0); -o-transform: scaleX(.0); transform: scaleX(.0)}
.MJXp-scale1 {-webkit-transform: scaleX(.1); -moz-transform: scaleX(.1); -ms-
transform: scaleX(.1); -o-transform: scaleX(.1); transform: scaleX(.1)}

```

```
.MJXp-scale2 {-webkit-transform: scaleX(.2); -moz-transform: scaleX(.2); -ms-
transform: scaleX(.2); -o-transform: scaleX(.2); transform: scaleX(.2)}
.MJXp-scale3 {-webkit-transform: scaleX(.3); -moz-transform: scaleX(.3); -ms-
transform: scaleX(.3); -o-transform: scaleX(.3); transform: scaleX(.3)}
.MJXp-scale4 {-webkit-transform: scaleX(.4); -moz-transform: scaleX(.4); -ms-
transform: scaleX(.4); -o-transform: scaleX(.4); transform: scaleX(.4)}
.MJXp-scale5 {-webkit-transform: scaleX(.5); -moz-transform: scaleX(.5); -ms-
transform: scaleX(.5); -o-transform: scaleX(.5); transform: scaleX(.5)}
.MJXp-scale6 {-webkit-transform: scaleX(.6); -moz-transform: scaleX(.6); -ms-
transform: scaleX(.6); -o-transform: scaleX(.6); transform: scaleX(.6)}
.MJXp-scale7 {-webkit-transform: scaleX(.7); -moz-transform: scaleX(.7); -ms-
transform: scaleX(.7); -o-transform: scaleX(.7); transform: scaleX(.7)}
.MJXp-scale8 {-webkit-transform: scaleX(.8); -moz-transform: scaleX(.8); -ms-
transform: scaleX(.8); -o-transform: scaleX(.8); transform: scaleX(.8)}
.MJXp-scale9 {-webkit-transform: scaleX(.9); -moz-transform: scaleX(.9); -ms-
transform: scaleX(.9); -o-transform: scaleX(.9); transform: scaleX(.9)}
.MathJax_PHTML .noError {vertical-align: ; font-size: 90%; text-align: left; color:
black; padding: 1px 3px; border: 1px solid}
</style><style id="wap-consent-banner-style-hide">#onetrust-banner-
sdk, .onetrust-pc-dark-filter.ot-fade-in{display:none !important}</style><script
type="text/javascript" async="" charset="utf-8" id="utag_intel.profile-cq.asmo-
na_2080" src="//tms-global.intel.com/profile-cq.asmo-na/prod/utag.2080.js?
utv=ut4.48.202207221456"></script><script type="text/javascript" async=""
charset="utf-8" id="utag_intel.profile-cq.asmo-na_1600" src="//tms-
global.intel.com/profile-cq.asmo-na/prod/utag.1600.js?
utv=ut4.48.202207221456"></script><script type="text/javascript" async=""
charset="utf-8" id="utag_intel.profile-cq.asmo-na_1731" src="//tms-
global.intel.com/profile-cq.asmo-na/prod/utag.1731.js?
utv=ut4.48.202207221456"></script><script type="text/javascript" async=""
charset="utf-8" id="utag_intel.profile-cq.asmo-na_1715" src="//tms-
global.intel.com/profile-cq.asmo-na/prod/utag.1715.js?
utv=ut4.48.202207221456"></script><style id="at-makers-style" class="at-
flicker-control">
.mboxDefault {visibility: hidden;}
</style></head>
```

```
<body class="page-is-published global-nav new_browser cookie-  
oldbrowser"><div id="MathJax_Message" style="display: none;"></div>
```

```
<div class="skip-to-main-content">  
  <div class="sb-skipLinkWrapper invisible">  
    <a href="#primary-content" class="inline-block bg-greenDarkApron color-  
textWhite text-bold text-noUnderline sb-skipLink visible">Skip To Main  
Content</a>  
  </div>  
</div>
```

```
<script>
  var isLoggedIn = (document.cookie.indexOf('IGHFLoggedIn') != -1);
  var loginValidateURL =
'https://www.intel.com/libs/apps/intel/myintel/profile.html/validate/loggedin';
</script>
```

```
<div class="global">
```

```
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
nav.min.css" as="style"><link rel="stylesheet"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
nav.min.css" type="text/css">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
secondaryNav.min.css" as="style"><link rel="stylesheet"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
secondaryNav.min.css" type="text/css">
```

```
<div class="global-nav-redesign global component" data-
component="global-nav-redesign" data-component-id="1">
```

```

<header role="banner">
  <nav class="intel-navbar advanced-search" role="navigation" aria-
label="main navigation" data-igm="">
    <!-- Brand and toggle get grouped for better mobile display -->
    <div class="navbar-wraper">

      <div class="navbar-logo">
        <a href="/content/www/us/en/homepage.html" alt="Intel
homepage" class="intel-logo-rebrand">

          
        </a>
      </div>

      <div class="navbar-left">
        <!-- mobile: menu toggle, sign in -->
        <div class="visible-xs">
          <button type="button" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" class="mega-hamburger
nav-link-icon nav-link-icon-toggle collapsed" data-target="#primary-nav" aria-
expanded="false" aria-controls="primary-nav" data-mega-
control="hamburger">
            <span class="sr-only">Toggle Navigation</span>
            <span class="fa-intel-menu icon-toggle-off"></span>
            <span class="fa-cancel-thin icon-toggle-on"></span>
          </button>
        </div>

        <!-- START DYNAMIC NAVIGATION MENEU -->
        <div class="collapse mega-menu-collapse" id="primary-nav">
          <div class="mega-menu-wrap">
            <ol class="mega-navbar unique-container-global-nav-
items">

              <!-- Start: Primary Nav Items -->

```

```
<li class="primary-nav-item">
  <button role="button" class="nav-link-primary collapsed" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" id="trigger-menu-0" data-
parent="#primary-nav" data-target="#menu-0" data-mega-control="l1" aria-
expanded="false" data-secure-link="none"
aria-controls="menu-0">Products</button>
```

```
<div class="mega-panel collapse" id="menu-0" role="region" aria-
expanded="false" aria-hidden="true" aria-label="Products Menu">
```

```
<div class="mega-panel-wrap">
  <div class="mega-panel-body">
    <div class="mega-body-wrap">
```

```
      <!-- If there is an unique level 2 it will use mega panel
layout !-->
```

```
<!-- +-----+ -->
```

```
<div class="mega-panel-heading" data-secure-link="none">

  <div class="nav-l2-container">
    <a href="/content/www/us/en/products/overview.html" class="nav-l2
nav-l2--no-border" data-
wap="{&quot;category&quot;:&quot;products&quot;,&quot;sectiontype&quot;:&
quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
      <span class=""></span>
      Products Home
    </a>
  </div>
```

```
<div class="panel-content flex-content-wrap">
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```



```
<a href="/content/www/us/en/products/details/processors.html" class="nav-l3
has-link" data-wap="{&quot;category&quot;:&quot;products-
home&quot;, &quot;sectiontype&quot;:&quot;subheading&quot;, &quot;linktype&
quot;:&quot;level3&quot;}">
  <span class="fa-processors"></span>
  Processors
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
```

```

        <a
href="/content/www/us/en/products/details/processors/xeon/scalable.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Intel® Xeon® Scalable
    </a>
</li>

```

```

<!-- +-----+ -->

```

```

    <li data-secure-link="none">
        <a href="/content/www/us/en/products/details/processors/xeon.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Intel® Xeon®
    </a>
</li>

```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/core.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Core™
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/pentium.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Pentium®
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/celeron.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Celeron®
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/atom.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel Atom®
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/movidius-
vpu.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Movidius™ VPUs
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/embedded-
processors.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    IoT and Embedded Processors
  </a>
</li>
```

```
</ul>
</div>
```

</div>

<!-- +-----+ -->

<div class="panel-item" data-secure-link="none">

<a href="/content/www/us/en/products/systems-devices.html" class="nav-l3  
has-link" data-wap="{&quot;category&quot;:&quot;products-  
home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&  
quot;:&quot;level3&quot;}">  
    <span class="fa-system-devices"></span>  
    Systems & Devices  
</a>

<div class="panel-item-content">  
    <ul class="panel-links nav-l4-list list-unstyled">

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/products/systems-devices/laptops/evo.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Intel® Evo™
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/systems-devices/laptops.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
```



```
        <span class=""></span>
        Laptops
    </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
        <a
href="/content/www/us/en/products/docs/boards-kits/nuc/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Intel® NUC
    </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/products/systems-devices/desktops.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Desktops
      </a>
    </li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a
href="/content/www/us/en/products/systems-devices/workstations.html"
class="nav-l4" data-
```

```
wap="{&quot;category&quot;::&quot;&quot;,&quot;sectiontype&quot;::&quot;sub
heading&quot;,&quot;linktype&quot;::&quot;level4&quot;}">
    <span class=""></span>
    Workstations
</a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
        <a
href="/content/www/us/en/architecture-and-technology/vpro/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;::&quot;&quot;,&quot;sectiontype&quot;::&quot;sub
heading&quot;,&quot;linktype&quot;::&quot;level4&quot;}">
            <span class=""></span>
            Intel vPro®
        </a>
    </li>
```

```
</ul>
</div>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/details/servers.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;products-home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&quot;:&quot;level3&quot;}">
```

```
  <span class="fa-server-products"></span>
```

```
  Server Products
```

```
</a>
```

```
<div class="panel-item-content">
```

```
  <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/servers/server-
systems.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Single Node Servers
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/servers/multi-node-server-
systems.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Multi Node Servers
  </a>
```

</li>

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/servers/data-center-
systems.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Data Center Systems
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/servers/server-
chassis.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Server Chassis
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/servers/server-
boards.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Server Boards
  </a>
```

</li>

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/servers/raid.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    SAS/RAID Products
  </a>
</li>
```



<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/server-management/intel-server-
management.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Intel® Server Management
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/programmable.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;;&quot;products-home&quot;;&quot;sectiontype&quot;;&quot;subheading&quot;;&quot;linktype&quot;;&quot;level3&quot;}">
    <span class="fa-fpga-products"></span>
    FPGAs & Programable Devices
</a>
```

```
<div class="panel-item-content">
    <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
        <a href="/content/www/us/en/products/details/fpga.html" class="nav-l4"
data-wap="{&quot;category&quot;;&quot;products-home&quot;;&quot;sectiontype&quot;;&quot;subheading&quot;;&quot;linktype&quot;;&quot;level4&quot;}">
            <span class=""></span>
            Intel® FPGAs
        </a>
    </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/programmable/edge-centric-
fpga.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Edge-Centric FPGAs
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/fpga/max.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    CPLDs
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/programmable/configuration-
device.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Configuration Devices
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/products/details/fpga/development-tools/quartus-
prime.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Quartus® Prime Design Software
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/fpga/intellectual-
property.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intellectual Property
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/fpga/development-
kits.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Boards & Kits
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/fpga/platforms/pac.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
  Acceleration Cards
</a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/details/easic.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;;&quot;products-home&quot;;&quot;sectiontype&quot;;&quot;subheading&quot;;&quot;linktype&quot;;&quot;level3&quot;}">
  <span class="fa-processors"></span>
  Structured ASICs
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
```



```

        <a href="/content/www/us/en/products/details/easic/n5x.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Intel® eASIC™ N5X Devices
    </a>
</li>

```

```

<!-- +-----+ -->

```

```

    <li data-secure-link="none">
        <a href="/content/www/us/en/products/details/easic/n3xs.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Intel® eASIC™ N3XS Devices
    </a>
</li>

```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/easic/n3x.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;&quot;level4&quot;}">
  <span class=""></span>
    Intel® eASIC™ N3X Devices
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
```

```
<a href="/content/www/us/en/products/details/easic/easicopy.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
  Intel® easicopy™ Devices
</a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/details/chipsets.html" class="nav-l3 has-
link" data-wap="{&quot;category&quot;:&quot;products-
home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class="fa-chipsets-1"></span>
  Chipsets
```

</a>

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/products/details/chipsets/mobile-
chipsets.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Mobile
      </a>
    </li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/products/details/chipsets/desktop-
chipsets.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Desktop
      </a>
    </li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/products/chipsets/server-chipsets.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Server
```

```
</a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/documentation-resources/developer.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Embedded
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/details/discrete-gpus.html" class="nav-l3
has-link" data-wap="{&quot;category&quot;:&quot;products-
home&quot;, &quot;sectiontype&quot;:&quot;subheading&quot;, &quot;linktype&
quot;:&quot;level3&quot;}">
  <span class="fa-discrete-graphic-gpu-spark"></span>
  Graphics Processing Units
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/discrete-gpus/arc.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Arc™
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/discrete-gpus/iris-xe-max.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Iris® X<sup>e</sup> MAX
  </a>
</li>
```



<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/discrete-gpus/server-graphics-
card.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Server GPU
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/details/memory-storage.html"
class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;products-
home&quot;,&quot;sectiontype&quot;:&quot;&quot;;&quot;subheading&quot;,&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class="fa-memory-storage-1"></span>
  Memory & Storage
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
```

```

        <a href="/content/www/us/en/products/details/memory-storage.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Solid State Drives
    </a>
</li>

```

```

<!-- +-----+ -->

```

```

    <li data-secure-link="none">
        <a href="/content/www/us/en/products/details/memory-storage/optane-
memory.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
            <span class=""></span>
            Intel® Optane™ Memory
        </a>
    </li>

```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/docs/memory-storage/optane-
persistent-memory/overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;&quot;level4&quot;}">
    <span class=""></span>
    Intel® Optane™ Persistent Memory
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/details/wireless.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;;&quot;products-home&quot;;&quot;sectiontype&quot;;&quot;subheading&quot;;&quot;linktype&quot;;&quot;level3&quot;}">
  <span class="fa-wireless-products"></span>
  Wireless Products
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/wireless/killer-series.html"
class="nav-l4" data-
wap="{&quot;category&quot;;&quot;&quot;;&quot;sectiontype&quot;;&quot;sub
heading&quot;;&quot;linktype&quot;;&quot;level4&quot;}">
  <span class=""></span>
  Intel® Killer™ Wireless Products
```

</a>  
</li>

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/wireless/wi-fi-6e-
series.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Wi-Fi 6E Products
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/wireless/wi-fi-6-
series.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Wi-Fi 6 Products
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/wireless/wireless-ac-
products.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Wireless-AC Products
```

```
</a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/network-io.html" class="nav-l3 has-link"
data-wap="{&quot;category&quot;:&quot;products-
home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class="fa-ethernet-products"></span>
  Network Communications and I/O
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```



```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a
href="/content/www/us/en/architecture-and-technology/ethernet.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Intel® Ethernet Technologies
      </a>
    </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/ethernet.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Ethernet Products
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/network-io/smartnic.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Infrastructure Processing Units (IPUs)
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/network-io/high-performance-
fabrics/silicon-photonics.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Silicon Photonics Optical Transceivers
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/network-io/programmable-
  ethernet-switch.html" class="nav-l4" data-
  wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
  heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Programmable Ethernet Switch Products
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="https://ark.intel.com/content/www/us/en/ark.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;products-home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&quot;:&quot;level3&quot;}">
  <span class="fa-book"></span>
  Product Specifications
</a>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</li>
```

```
<li class="primary-nav-item">
  <button role="button" class="nav-link-primary collapsed" data-wap="{&quot;linktype&quot;:&quot;level1&quot;}" id="trigger-menu-1" data-parent="#primary-nav" data-target="#menu-1" data-mega-control="l1" aria-expanded="false" data-secure-link="none" aria-controls="menu-1">Support</button>
```

```
<div class="mega-panel collapse" id="menu-1" role="region" aria-expanded="false" aria-hidden="true">
```

```
<div class="mega-panel-wrap">
  <div class="mega-panel-body">
    <div class="mega-body-wrap">
```

layout !--> <!-- If there is an unique level 2 it will use mega panel

```
<div class="panel-content flex-content-wrap">
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<div class="nav-l3" data-  
wap="{&quot;category&quot;;&quot;supportanalytics&quot;;&quot;sectiontype&  
quot;;&quot;subheading&quot;;&quot;linktype&quot;;&quot;level2&quot;}">  
    <span class=""></span>  
    Drivers & Downloads  
</div>  
<div class="panel-item-content">  
  
    <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">  
    <a href="/content/www/us/en/support/detect.html" class="nav-l4" data-  
wap="{&quot;category&quot;;&quot;&quot;;&quot;sectiontype&quot;;&quot;sub  
heading&quot;;&quot;linktype&quot;;&quot;level4&quot;}">  
        <span class=""></span>  
        Auto-update your Drivers  
    </a>  
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/download-center/home.html" class="nav-
l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
      Download Center
    </a>
  </li>
```

```
</ul>
</div>
</div>
```



<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;:&quot;supportanalytics&quot;,&quot;sectiontype&
quot;:&quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
    <span class=""></span>
    Support For
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/support.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Products
      </a>
    </li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/developer/get-help/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Developers
      </a>
    </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/supplier/resources/self-help/intel-
corporation-support.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Suppliers
  </a>
</li>
```

```
</ul>
</div>
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;:&quot;supportanalytics&quot;,&quot;sectiontype&
quot;:&quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
    <span class=""></span>
    Resources
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/support/topics/utility-tools.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Product Tools & Utilities
      </a>
    </li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
```

```
<a href="https://community.intel.com/" class="nav-l4" data-  
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub  
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">  
  <span class=""></span>  
  Support Community  
</a>  
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">  
  <a href="https://supporttickets.intel.com/servicecenter?lang=en-US"  
class="nav-l4" data-  
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub  
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">  
    <span class=""></span>  
    Warranty Information  
  </a>  
</li>
```

<!-- +-----+ -->

```

    <li data-secure-link="none">
      <a href="/content/www/us/en/support/contact-intel.html" class="nav-l4"
data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Contact Support
      </a>
    </li>

```

```

    </ul>
  </div>
</div>

```

```

    </div>
  </div>
</div>
</div>
</li>

```

```
<li class="primary-nav-item">
  <button role="button" class="nav-link-primary collapsed" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" id="trigger-menu-2" data-
parent="#primary-nav" data-target="#menu-2" data-mega-control="l1" aria-
expanded="false" data-secure-link="none" aria-controls="menu-
2">Solutions</button>
```

```
<div class="mega-panel collapse" id="menu-2" role="region" aria-
expanded="false" aria-hidden="true">
```

```
  <div class="mega-panel-wrap">
    <div class="mega-panel-body">
      <div class="mega-body-wrap">
```

```
        <!-- If there is an unique level 2 it will use mega panel
layout !-->
```

```
      <div class="panel-content flex-content-wrap">
```



<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;:&quot;solutions&quot;,&quot;sectiontype&quot;:&
quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
    <span class=""></span>
    Business Solutions
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
<li data-secure-link="none">
```

```
        <a href="/content/www/us/en/artificial-intelligence/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        AI
    </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
        <a href="/content/www/us/en/wireless-network/5g-technology-
overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        5G
    </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/business/overview.html" class="nav-l4"
data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Business PCs
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/cloud-computing/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Cloud Computing
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/edge-computing/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Edge Computing
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/internet-of-things/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    IOT
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/topics/overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    View all &gt;
  </a>
</li>
```

```
</ul>
</div>
</div>
```

<!-- +-----+ -->

```

        <div class="panel-item" data-secure-link="none">
            <div class="nav-l3" data-
wap="{&quot;category&quot;:&quot;solutions&quot;,&quot;sectiontype&quot;:&
quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
                <span class=""></span>
                Consumer Solutions
            </div>
            <div class="panel-item-content">

                <ul class="panel-links nav-l4-list list-unstyled">

```

```

<!-- +-----+ -->

```

```

        <li data-secure-link="none">
            <a href="/content/www/us/en/products/creative-pro.html" class="nav-l4"
data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
                <span class=""></span>

```

```
        Creators
    </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
        <a href="/content/www/us/en/gaming/serious-gaming.html" class="nav-
l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
            <span class=""></span>
            Gaming
        </a>
    </li>
```

```
    </ul>
</div>
</div>
```



<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;:&quot;solutions&quot;,&quot;sectiontype&quot;:&
quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
    <span class=""></span>
    Industry Solutions
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/education/intel-education.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Education
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/financial-services-it/financial-services-
overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Financial Services
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/government/public-sector-solutions-
overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Government & Public Sector
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/healthcare-it/healthcare-overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Healthcare & Life Sciences
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a
href="/content/www/us/en/internet-of-things/industrial-iot/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Industrial
      </a>
    </li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/retail/overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Retail
      </a>
    </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/transportation/overview.html" class="nav-
l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
      Transportation
    </a>
  </li>
```

<!-- +-----+ -->

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/industries/overview.html" class="nav-l4"
data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        View all &gt;
      </a>
    </li>
```

```
    </ul>
  </div>
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;:&quot;solutions&quot;,&quot;sectiontype&quot;:&
quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
    <span class=""></span>
    Services
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->



```
<li data-secure-link="none">
  <a href="/content/www/us/en/software/data-center-overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel Data Center Manager
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/foundry/intel-foundry-services.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel Foundry Services
  </a>
</li>
```

```
</ul>
</div>
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;;&quot;solutions&quot;;&quot;sectiontype&quot;;&
quot;subheading&quot;;&quot;linktype&quot;;&quot;level2&quot;}">
    <span class=""></span>
    Resources
  </div>
```

```
<div class="panel-item-content">
```

```
<ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/customer-spotlight/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Customer Spotlight
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/tech-tips-and-tricks/tech-tips.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Technology Tips & Tricks
      </a>
    </li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/partner/showcase/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Partner Showcase
```

</a>  
</li>

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="https://marketplace.intel.com/s/" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Solutions Marketplace
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/company-overview/wonderful.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        People Creating Wonderful
      </a>
    </li>
```

```
    </ul>
  </div>
</div>
```

```
    </div>
  </div>
</div>
</div>
</li>
```

```
<li class="primary-nav-item">
```

```
<button role="button" class="nav-link-primary collapsed" data-  
wap="{&quot;linktype&quot;:&quot;level1&quot;}" id="trigger-menu-3" data-  
parent="#primary-nav" data-target="#menu-3" data-mega-control="l1" aria-  
expanded="false" data-secure-link="none" aria-controls="menu-  
3">Developers</button>
```

```
<div class="mega-panel collapse" id="menu-3" role="region" aria-  
expanded="false" aria-hidden="true">
```

```
<div class="mega-panel-wrap">  
  <div class="mega-panel-body">  
    <div class="mega-body-wrap">
```

```
      <!-- If there is an unique level 2 it will use mega panel  
layout !-->
```

```
<!-- +-----+ -->
```

```
<div class="mega-panel-heading" data-secure-link="none">
```

```
<div class="nav-l2-container">
  <a href="/content/www/us/en/developer/overview.html" class="nav-l2
nav-l2--no-border" data-
wap="{&quot;category&quot;:&quot;developers&quot;,&quot;sectiontype&quot;
:&quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
    <span class=""></span>
    Developers Home
  </a>
</div>
```

```
<div class="panel-content flex-content-wrap">
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/developer/tools/overview.html" class="nav-l3 has-
link" data-wap="{&quot;category&quot;:&quot;developers-
home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class=""></span>
  Development Tools
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```



```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a
href="/content/www/us/en/developer/tools/software-catalog/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Software Catalog
      </a>
    </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/download-center/home.html" class="nav-
l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Download Center
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="https://designintools.intel.com/" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Design Tools and Services
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="https://registrationcenter.intel.com/en/" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Software Registration
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/resources-documentation/developer.html"
class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;developers-
home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class=""></span>
  Resources & Documentation
</a>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/developer/learn/overview.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;developers-home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&quot;:&quot;level3&quot;}">
  <span class=""></span>
  Learn
</a>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/developer/topic-technology/overview.html"
class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;developers-home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&quot;:&quot;level3&quot;}">
  <span class=""></span>
  Topics & Technologies
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/developer/topic-technology/artificial-
intelligence/overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Artificial Intelligence
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/developer/topic-technology/client/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Client
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/developer/topic-technology/cloud/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Cloud
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a
href="/content/www/us/en/developer/topic-technology/gamedev/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Game Development
      </a>
    </li>
```



<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/developer/topic-technology/edge-5g/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Edge, IoT & 5G
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/developer/topic-technology/high-
performance-computing/overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    High Performance Computing (HPC)
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/developer/community/overview.html" class="nav-
l3 has-link" data-wap="{&quot;category&quot;;&quot;developers-
home&quot;;&quot;sectiontype&quot;;&quot;subheading&quot;;&quot;linktype&
quot;;&quot;level3&quot;}">
  <span class=""></span>
  Communities & Events
</a>
```

```
</div>
```

<!-- +-----+ -->

<div class="panel-item" data-secure-link="none">

<a href="/content/www/us/en/developer/get-help/overview.html" class="nav-l3  
has-link" data-wap="{&quot;category&quot;:&quot;developers-  
home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&  
quot;:&quot;level3&quot;}">  
    <span class=""></span>  
    Get Help  
</a>

</div>

<!-- +-----+ -->

<div class="panel-item" data-secure-link="none">

```
<a href="/content/www/us/en/developer/programs/overview.html" class="nav-l3
has-link" data-wap="{&quot;category&quot;:&quot;developers-
home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class=""></span>
  Developer Programs
</a>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</li>
```

```
<li class="primary-nav-item">
  <button role="button" class="nav-link-primary collapsed" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" id="trigger-menu-4" data-
parent="#primary-nav" data-target="#menu-4" data-mega-control="l1" aria-
expanded="false" data-secure-link="none"
aria-controls="menu-4">Partners</button>
```

```
<div class="mega-panel collapse" id="menu-4" role="region" aria-  
expanded="false" aria-hidden="true">
```

```
<div class="mega-panel-wrap">  
  <div class="mega-panel-body">  
    <div class="mega-body-wrap">
```

```
      <!-- If there is an unique level 2 it will use mega panel  
layout !-->
```

```
<!-- +-----+ -->
```

```
<div class="mega-panel-heading" data-secure-link="none">
```

```
<div class="panel-content flex-content-wrap">
```

<!-- +-----+ -->

<div class="panel-item" data-secure-link="none">

<a href="/content/www/us/en/partner-alliance/overview.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub heading&quot;,&quot;linktype&quot;:&quot;level3&quot;}">  
    <span class=""></span>  
    Intel® Partner Alliance  
</a>

<div class="panel-item-content">  
    <ul class="panel-links nav-l4-list list-unstyled">

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/partner-alliance/membership/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    About Membership
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/my-intel/partner-login.html" class="nav-l4"
data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Already a Member? Login
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/partner-alliance/marketplace/submit-a-
solution.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Submit a Solution
      </a>
    </li>
```

```
<!-- +-----+ -->
```



```
<li data-secure-link="none">
  <a href="/content/www/us/en/partner-alliance/help/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Get Help
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="https://marketplace.intel.com/s/" class="nav-l3 has-link" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level3&quot;}">
  <span class=""></span>
```

Intel® Solutions Marketplace  
</a>

<div class="panel-item-content">  
  <ul class="panel-links nav-l4-list list-unstyled">

<!-- +-----+ -->

  <li data-secure-link="none">  
    <a href="https://marketplace.intel.com/s/offerings-by-category?  
language=en\_US" class="nav-l4" data-  
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub  
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">  
      <span class=""></span>  
      Offerings by Category  
    </a>  
  </li>

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="https://marketplace.intel.com/s/partner-directory?
language=en_US" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Partner Directory
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/secure/retail/partner-solutions/overview.html"
class="nav-l3 has-link" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level3&quot;}">
  <span class=""></span>
  Retail Partner Solutions
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
  <li data-secure-link="none">
    <a href="https://supporttickets.intel.com/supportrequest?lang=en-
US&amp;productId=211841%3A11430" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
      <span class=""></span>
      Retail Support
    </a>
  </li>
```

```
</ul>
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</li>
```

```
<!-- Start Mega More+ Nav Item -->
```

```
<li class="primary-nav-item primary-nav-item-more hidden" data-mega-control-
more-item="" style="">
```

```
  <button data-wap="{&quot;linktype&quot;:&quot;level1&quot;}"
role="button" class="nav-link-primary collapsed" id="trigger-mega-more-panel"
data-target="#mega-more-panel" data-mega-control="more-l1" aria-
expanded="false" aria-controls="mega-more-panel">More +
```

```
  </button>
```

```
  <div class="mega-panel mega-more-panel collapse" id="mega-more-panel"
role="region" aria-expanded="false" aria-hidden="true" aria-
labelledby="trigger-mega-more-panel">
```

```
    <div class="mega-panel-wrap">
```

```
      <div class="mega-panel-body">
```

```
        <div class="panel-content">
```

```
          <ol class="mega-navbar mega-navbar-more-list">
```

```
            </ol>
```

```
          </div>
```

```
        </div>
```

```
      </div>
```

```
    </div>
```

```
</li>
```

```
<script type="text/javascript">
  /**
   * This chunk of code is used to bypass Akamai cache - since this goes to the
   globalNav that can be cleared independently
   */
  var globalMenuConfigs = {
    idpUrl:
"https://sfederation.intel.com/federation2/sp/WebExperienceManagementSolutio
nonAEMforIntel/d3d3LmludGVsLmNvbQ%3D%3D"
  }
</script>
```

```
<!-- End Mega More+ Nav Item -->
</ol>
```

```
      </div>
    </div>
  </div>
```

```
<!-- START MOBLE TOGGLE buttons -->
<div class="navbar-right">
```

```
  <!-- START: NON-signed in panel -->
```

```

<span id="not-logged-in-scenario" class="">
  <button type="button" title="Sign In" class="nav-link-icon nav-link-icon-
toggle collapsed" data-wap="{&quot;linktype&quot;;&quot;level1&quot;}" data-
target="#panel-signin" aria-expanded="false" aria-controls="panel-signin" data-
mega-control="signin">
    <span class="sr-only">Sign In</span>
    <span class="fa-intel-user-o icon-toggle-off"></span>
    <span class="fa-intel-user icon-toggle-on"></span>
  </button>

  <div class="mega-panel panel-layout-signin collapse" id="panel-signin">
  <div class="mega-panel-wrap">
    <div class="mega-panel-body">
      <div class="panel-content flex-content-wrap">
        <div class="panel-item with-sep-line panel-col-1of2">
          <form id="igm-form-signin"
action="https://www.intel.com/libs/apps/intel/login.json/securitytoken"
method="POST" name="igm-form-signin" class="intel-form" novalidate="">
            <h3 class="section-title">Sign In</h3>
            <div class="flex-layout-md">
              <div class="form-group flex-col-md vertical-gutter">
                <label for="username" class="component" data-
component="wa_skip_track" data-component-id="1">
                  <span class="sr-only">Username</span>
                  <input class="form-control form-input" aria-
describedby="uname-error" name="userid" id="username"
placeholder="Username" required="">
                </label>
                <div class="error validation-messages " id="uname-error">
                  <div class="rule broken">Your username is
missing</div>
                </div>
              </div>
              <div class="form-group flex-col-md vertical-gutter">
                <label for="password" class="component" data-
component="wa_skip_track" data-component-id="1">

```

```

        <span class="sr-only">Password</span>
        <input type="password" class="form-control form-input"
aria-describedby="pwd-error" id="password" name="password"
placeholder="Password" required="" autocomplete="off">
    </label>
    <div class="error validation-messages " id="pwd-error">
        <div class="rule broken">Your password is
missing</div>
    </div>
</div>
</div>
</div>

<p class="vertical-gutter">By signing in, you agree to our <a
href="/content/www/us/en/legal/terms-of-use.html">Terms of Service</a>.</p>

<div class="flex-layout-md flex-align-center vertical-gutter">
    <input type="hidden" name="callBack"
id="callBackSimplify">
    <input type="hidden" name="queryParam" id="queryParam"
value="https://www.intel.com/content/www/us/en/docs/programmable/683865/
current/executing-ips-file.html">
    <input type="submit" class="btn btn-primary blue-btn-white-
text" value="Sign In" data-wap="{&quot;linktype&quot;:&quot;sign-in&quot;}">
    <label for="cbRememberMe" class="has-switch-input">
        <input id="cbRememberMe" name="rememberme"
type="checkbox" value="true">
        <span class="check-box"></span>
        <span>Remember me</span>
    </label>
</div>

<p class="vertical-gutter">
    Forgot your Intel
    <a
href="https://www.intel.com/content/www/us/en/my-intel/forgot-
userid.html">username</a>
    or
    <a
href="https://www.intel.com/content/www/us/en/my-intel/forgot-
password.html">password</a>?
</p>
<p class="vertical-gutter">
    <a href="/content/www/us/en/support/topics/sign-in-
faq.html">Frequently Asked Questions</a>
</p>
</form>
<div class="alert alert-danger" id="login-error" role="alert"></div>
</div>
<div class="panel-item panel-col-variant">
    <div class="padding-wrap valign-to-input">
        <p class="vertical-gutter" style="display: none;">Do you work
for Intel? <a data-wap_ref="sign-in-general" href="#"
onclick="intel.signinsimplify.geturl('https://myapps.microsoft.com/signin/
Azure_To_SEPMP_Bridge_PR_IAP_7086/b5335fcd-30d1-4825-8a79-

```



```
4234279c8301?tenantId=46c98d88-e344-4ed4-8496-4ed7712e255d&RelayState=')">
```

```
    Sign in here</a>.  
</p>
```

```
    <p class="vertical-gutter">Don't have an Intel account?  
      <a data-wap_ref="sign-up-general" href="#"  
onclick="intel.signinHeaderSimplify.doRedirect('/forms/basic-intel-  
registration.html')"> Sign up here </a>  
      for a basic account.  
    </p>
```

```
  </div>  
</div>  
</div>  
</div>  
</div>  
</div>  
</span>
```

```
<iframe id="frameSigninSimplify" tabindex="-1" title="My Intel Sign in" aria-  
hidden="true" name="frameSigninSimplify"  
src="/etc.clientlibs/settings/wcm/designs/intel/clientlibs/pages/commons-page/  
resources/html/idamFormStaticSimplify.html" style="display:none;"></iframe>
```

```
<script>
```

```
var intel = intel || {};  
intel.signinsimplifyConfig = {  
  locale: "",  
  messages: {  
    InvalidCredential: 'The username or password you entered was invalid.',  
    InvalidField: 'The username or password you entered was invalid.',  
    AccountDisabled: 'For security reasons, your account has been disabled.  
For help, <a href="#" class="contactLink new-tab-link" target="_blank" rel="noopener noreferrer" >contact us</a>.',  
    AccountLocked: 'Your account has been locked. For help, please read the  
<a href="#" class="faqsLink new-tab-link" target="_blank" rel="noopener noreferrer" >Sign In FAQ</a>.',  
    UserNotFound: 'The username or password you entered was invalid.',  
    Unknown: 'An unexpected error occurred. Try it again. For help, use the  
contact or support options below.',  
    PasswordExpired: 'Your password is expired. Please change your  
password.',  
    LoginAssistLink: 'https://signin.intel.com/ContactUs.aspx',  
    faqsLink: '/content/www/my-intel/sign-in-help.html'  
  },  
  nameField: 'Username',  
  passField: 'Password',  
  signinUrl: '/libs/apps/intel/login.json/securitytoken',  
  isPopUp: true,  

```

```

        responseHref:
'https://www.intel.com/content/www/us/en/docs/programmable/683865/current/
executing-ips-file.html?' + window.location.hash,
        sslDomainUrl: 'www.intel.com',
        loginUrl: 'https://welcome.intel.com/login.aspx?appid=258&qlogin=true',
        ssoUri: 'https://federatesso.intel.com',
        logoutUrl: 'https://welcome.intel.com/logout.aspx',
        logoutHref:
'https://signin.intel.com/Logout?RedirectURL=https://www.intel.com/content/
www/us/en/docs/programmable/683865/current/executing-ips-file' + '.html',
        logoutGHFHref: 'https://signin.intel.com/Logout?RedirectURL=',
        loginErrorID: '#login-error',
        usernameID: '#username',
        remembermeID: '#cbRememberMe',
        formID: '#igm-form-signin',
        unameErrorID: '#uname-error',
        passID: '#password',
        passError: '#pwd-error',
        changePasswordUrl: '/content/www/us/en/my-intel/change-password.html',
        emailVerificationUrl: '/content/www/us/en/my-intel/email-
verification.external.html',
        aboutToExpireEmailUrl: '/content/www/us/en/my-intel/email-
verification.html',
        renewalUrl: '/content/www/us/en/secure/technology-provider/forms/renew-
technology-provider-membership.html',
        limitedUrl: '/content/www/us/en/resellers/limited-status-secondary.html',
        isaPRMDashBoardURL: '/content/www/us/en/secure/partner/solutions-
alliance/overview.html',
        itpPRMDashBoardURL: '/content/www/us/en/secure/partner/technology-
provider/iot/overview.html',
        itpisaPRMDashBoardURL:
'/content/www/us/en/secure/partner/iot-itp-isa/overview.html',
        isaRenewalURL: '/content/www/us/en/secure/partner/forms/solutions-
alliance-renewal.html',
        primaryPostLaunchURL: 'https://partner.intel.com/s/post-launch-primary',
        nonPrimaryPostLaunchURL: 'https://partner.intel.com/s/post-launch-non-
primary',
        idpUrl:
'https://sfederation.intel.com/federation2/sp/WebExperienceManagementSolution
onAEMforIntel/d3d3LmludGVsLmNvbQ%3D%3D'
    };

```

```

    if (!isLoggedIn && ((document.domain.indexOf("thailand") == -1 &&
document.domain.endsWith(".intel.com"))) ||
document.getElementById("recode50header") != null) && (navigator != null &&
navigator.userAgent.indexOf("CloudManagerTest") == -1)) {
        try {
            var xmlhttp = new XMLHttpRequest();
            xmlhttp.open('HEAD', 'https://sfederation.intel.com/federation/status.asp',
false);
            xmlhttp.withCredentials="true";
            xmlhttp.send();
            if (200 == xmlhttp.status) {
                var currentUrl = window.location.href;

```

```
        var cookiename = "IGHFtarget";
        var samlcookieValue = cookiename + "=" +
encodeURIComponent(currentUrl) + ";secure;path=/;domain=.intel.com";
        document.cookie= samlcookieValue;
        window.location.href =
'https://sfederation.intel.com/federation2/sp/WebExperienceManagementSolution
onAEMforIntel/d3d3LmludGVsLmNvbQ%3D%3D';
    }
    } catch(error) {
    }
}

</script>
<script defer="" src="/content/dam/www/global/network.js"
type="text/javascript"></script>
```

```

<script id="myinteldrpdwn-template" type="text/x-handlebars-template">
  <section class="myintel-tools-content" role="region"
    aria-label="My Intel">

    <div class="panel-header force-background solid brand-very-dark-gray my-
intel-menu">
      <button type="button" class="icon close pull-right" data-igm-search-
toggle="" aria-label="Close"
        tabindex="0" data-wap="" data-wap_ref="myintel-navmenu-
closing">
        <span></span>
      </button>
      <ul class="nav nav-tabs component">

```

```

        <li role="presentation" class="active" data-step='1' data-title='My
Intel Dashboard and My Tools' data-intro='<p>Click here to access the My Intel
Dashboard from any Intel.com page. From here you can also access your
Subscriptions page, as well as your personalized list of tools.</p>'>
          <a href="#my-intel" role="tab" tabindex="0">My Intel<span
            class="fa fa-user"></span></a>
        </li>
      </ul>
    </div>

```

```

<div class="my-intel-panel-body tab-content">

  <div role="tabpanel" class="tab-pane fade in active" id="my-intel">
    <ul class="myintel-links">
      {{#each myintelpagelinks}}
        <li data-agsrole="{{{agsrole}}}"
          data-blacklistedagsrole="{{{blacklistedagsgroupname}}}"
          data-isinternal="{{{displayOnlyInternal}}}"
          data-isexternal="{{{displayOnlyExternal}}}"
          class="{{{class}}}">
          <a target="{{{target}}}"
            href="{{{href}}}" tabindex="0">{{{label}}}</a>
        </li>
      </ul>
    </div>

```

```

        </li>
        {{/each}}
    </ul>
    <div class="tools-pane component" data-component="myintel-tools"
data-component-id="1">
        <h5 class="my-intel-tools">My Tools</h5>

        <ul class="myintel-links">
            {{#each mytoollinks}}
            <li class="myintellink"
                data-isinternal="{{{displayOnlyInternal}}}"
                data-isexternal="{{{displayOnlyExternal}}}">
                <h3 style="display:none;">{{{agsgroupname}}}</h3>
                <h4
style="display:none;">{{{blacklistedagsgroupname}}}</h4>
                <a tabindex="0" href="{{{linkurl}}}" target="_blank"
rel="noopener noreferrer" title="">{{{linktext}}}</a>
                {{#if tooltip}}
                <a class="fa fa-help-circled" tabindex="0" data-
toggle="tooltip" data-html="true"
                    data-title="{{{tooltip}}}" data-placement="bottom" data-
wap_ref="tooltip:{{{linktext}}}"><span
class="sr-only">{{{tooltip}}}</span></a>
                {{/if}}
            </li>
            {{/each}}
        </ul>
    </div>
</div>
</section>
</script>

```

```

<span id="logged-in-scenario" class="hidden">

```

```

<button type="button" title="My Intel" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" class="nav-link-icon nav-
link-icon-toggle collapsed" data-target="#panel-signedin" aria-expanded="false"
aria-controls="panel-signedin" data-mega-control="signedin">
    <span class="sr-only">My Intel</span>
    <span class="fa intel-user-checked-o icon-toggle-off"></span>
    <span class="fa intel-user-checked icon-toggle-on"></span>
</button>

```

```

<div class="mega-panel panel-layout-signed-in collapse" id="panel-signedin">
    <div class="mega-panel-wrap">
        <div class="mega-panel-body">
            <div class="panel-content flex-content-wrap">

                <!-- MyIntel Section -->
                <!-- ----- -->
                <div class="panel-item hidden" id="myIntelPageLinks">

```

```

        <a id="myIntelPageLinksHeader" class="nav-l3 has-border has-
link"></a> <!-- {{#if heading.onState}} selected{{{/if}} {{#if
heading.onStateParent}} selected-parent{{{/if}} -->
        <div class="panel-item-content">
            <ul id="myIntelPageLinksItem" class="panel-links nav-l4-list
list-unstyled">

                </ul>
            </div>
        </div>

<!-- My Tools Section -->
<!-- ----- -->
<div class="panel-item col-span-2" id="myIntelTools">

    <div class="nav-l3">
        My Tools
    </div>

    <div class="panel-item-content">
        <!--
            Note: right now this panel (myTools) has only one column/ul
            if more columns are needed, remove below's 'w-auto' class
        -->
        <ul class="panel-links nav-l4-list list-unstyled w-auto"
id="mytools-ul">

            <!-- this 'li' will be used as the template to populate this
section from the js -->
            <li class="hidden">
                <a class="nav-l4"></a>

                <button class="btn-tooltip-trigger hidden" data-
toggle="tooltip" data-placement="bottom" title="" data-original-title="">
                    <span>?</span>
                </button>
            </li>
        </ul>
    </div>
</div>

</div>

    <div class="item-actions">
        <button type="button" class="btn btn-primary"
data-sso-uri="https://federatesso.intel.com" data-logout-uri="" data-
wap="{&quot;linktype&quot;:&quot;logout&quot;}"
onclick="intel.signinsimplify.signOut()">Sign Out</button>
    </div>
</div>
</div>
</div>

```

</span>

```
<button type="button" title="Language Selector" data-  
wap="{&quot;linktype&quot;:&quot;level1&quot;}" class="nav-link-icon nav-  
link-icon-toggle collapsed" data-target="#panel-language-  
selector" aria-expanded="false" aria-controls="panel-language-  
selector" data-mega-control="language-selector">  
  <span class="fa-intel-globe-o icon-toggle-off"></span>  
  <span class="fa-intel-globe icon-toggle-on"></span>  
  <span class="nav-link-icon-label">USA (English)</span>  
</button>
```

```
<div class="mega-panel panel-layout-language collapse" id="panel-language-  
selector" aria-expanded="false" aria-selected="false" aria-collapsed="true">  
  <div class="mega-panel-wrap">  
    <div class="mega-panel-body">  
      <div class="mega-panel-heading">  
        <h2 class="nav-l2">  
          Select Your Region  
        </h2>  
      </div>  
      <div class="panel-content flex-content-wrap">  
  
        <div class="panel-item col-span-2 col-span-2-md">  
          <!-- region.countryName is actually region name -->  
          <h3 class="nav-l3 no-border">Asia Pacific</h3>  
          <ul class="list-unstyled panel-links nav-l4-list columns-2">
```

```
    <li class="lang-option">
```

```

        <a class="nav-l4" data-locale="en_xa"
href="https://www.intel.sg/content/www/xa/en/homepage.html?
countrylabel=Asia Pacific">
            Asia Pacific (English)
        </a>
    </li>

```

```

    <li class="lang-option">

```

```

        <a class="nav-l4" data-locale="en_au"
href="https://www.intel.com.au/content/www/au/en/homepage.html">
            Australia (English)
        </a>
    </li>

```

```

    <li class="lang-option">

```

```

        <a class="nav-l4" data-locale="en_in"
href="https://www.intel.in/content/www/in/en/homepage.html">
            India (English)
        </a>
    </li>

```

```

    <li class="lang-option">

```



```
        <a class="nav-l4" data-locale="id_id"
href="https://www.intel.co.id/content/www/id/id/homepage.html">
            Indonesia (Bahasa Indonesia)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="ja_jp"
href="https://www.intel.co.jp/content/www/jp/ja/docs/programmable/683865/
current/executing-ips-file.html">
            Japan (日本語)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="ko_kr"
href="https://www.intel.co.kr/content/www/kr/ko/homepage.html">
            Korea (한국어)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="zh_cn"
href="https://www.intel.cn/content/www/cn/zh/docs/programmable/683865/
current/executing-ips-file.html">
```

```
        Mainland China (中國)
```

```
    </a>
</li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="zh_tw"
href="https://www.intel.com.tw/content/www/tw/zh/homepage.html">
```

```
        Taiwan (台灣)
```

```
    </a>
</li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="th_th"
href="https://www.thailand.intel.com/content/www/th/th/homepage.html">
```

```
        Thailand (泰國)
```

```
    </a>
</li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="vi_vn"
href="https://www.intel.vn/content/www/vn/vi/homepage.html">
```

```

        Vietnam (Tiếng Việt)
    </a>
</li>

</ul>
</div>

<div class="panel-item col-span-2 col-span-2-md">
    <!-- region.countryName is actually region name -->
    <h3 class="nav-l3 no-border">Europe</h3>
    <ul class="list-unstyled panel-links nav-l4-list columns-2">
```

```

        <li class="lang-option">
```

```

            <a class="nav-l4" data-locale="fr_fr"
href="https://www.intel.fr/content/www/fr/fr/homepage.html">
                France (Français)
            </a>
        </li>
```

```

        <li class="lang-option">
```

```

            <a class="nav-l4" data-locale="de_de"
href="https://www.intel.de/content/www/de/de/homepage.html">
                Germany (Deutsch)
            </a>
        </li>
```

```

        <li class="lang-option">
```

```
        <a class="nav-l4" data-locale="en_ie"
href="https://www.intel.ie/content/www/ie/en/homepage.html">
            Ireland (English)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="it_it"
href="https://www.intel.it/content/www/it/it/homepage.html">
            Italy (Italiano)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="pl_pl"
href="https://www.intel.pl/content/www/pl/pl/homepage.html">
            Poland (Polski)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="ru_ru"
href="https://www.intel.ru/content/www/ru/ru/homepage.html">
            Russia (Русский)
        </a>
    </li>
```

```
    <li class="lang-option">
```

```
        <a class="nav-l4" data-locale="es_es"
href="https://www.intel.es/content/www/es/es/homepage.html">
            Spain (Español)
        </a>
    </li>
```

```
    <li class="lang-option">
```

```
        <a class="nav-l4" data-locale="tr_tr"
href="https://www.intel.com.tr/content/www/tr/tr/homepage.html">
            Turkey (Türkçe)
        </a>
    </li>
```

```
    <li class="lang-option">
```

```
        <a class="nav-l4" data-locale="en_uk"
href="https://www.intel.co.uk/content/www/uk/en/homepage.html">
            United Kingdom (English)
```

```
</a>
</li>
```

```
</ul>
</div>
```

```
<div class="panel-item">
  <!-- region.countryName is actually region name -->
  <h3 class="nav-l3 no-border">Latin America</h3>
  <ul class="list-unstyled panel-links nav-l4-list">
```

```
<li class="lang-option">
```

```
      <a class="nav-l4" data-locale="es_xl"
href="https://www.intel.la/content/www/xl/es/homepage.html?
countrylabel=Argentina">
        Argentina (Español)
      </a>
    </li>
```

```
<li class="lang-option">
```

```
      <a class="nav-l4" data-locale="pt_br"
href="https://www.intel.com.br/content/www/br/pt/homepage.html">
        Brazil (Português)
      </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="es_xl"
href="https://www.intel.la/content/www/xl/es/homepage.html?
countrylabel=Chile">
```

```
        Chile (Español)
```

```
    </a>
```

```
</li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="es_xl"
href="https://www.intel.la/content/www/xl/es/homepage.html?
countrylabel=Colombia">
```

```
        Colombia (Español)
```

```
    </a>
```

```
</li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="es_xl"
href="https://www.intel.la/content/www/xl/es/homepage.html?
countrylabel=Latin America">
```

```
        Latin America (Español)
```

```
    </a>
```

```
</li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="es_xl"
href="https://www.intel.la/content/www/xl/es/homepage.html?
countrylabel=Mexico">
```

```
        Mexico (Español)
```

```
    </a>
</li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="es_xl"
href="https://www.intel.la/content/www/xl/es/homepage.html?
countrylabel=Peru">
```

```
        Peru (Español)
```

```
    </a>
</li>
```

```
</ul>
</div>
```

```
<div class="panel-item">
```

```
    <!-- region.countryName is actually region name -->
```

```
    <h3 class="nav-l3 no-border">Middle East/Africa</h3>
```

```
    <ul class="list-unstyled panel-links nav-l4-list">
```

```
        <li class="lang-option">
```

```
        <a class="nav-l4" data-locale="he_il"
href="https://www.intel.co.il/content/www/il/he/homepage.html">
        Israel (עברית)
```

```
    </a>
</li>
```

```
</ul>
```



</div>

<div class="panel-item">

<!-- region.countryName is actually region name -->

<h3 class="nav-l3 no-border">North America</h3>

<ul class="list-unstyled panel-links nav-l4-list">

<li class="selected lang-option">

<a class="nav-l4" data-locale="en\_us"  
href="https://www.intel.com/content/www/us/en/homepage.html">  
United States (English)  
</a>  
</li>

<li class="lang-option">

<a class="nav-l4" data-locale="en\_ca"  
href="https://www.intel.ca/content/www/ca/en/homepage.html">  
Canada (English)  
</a>  
</li>

<li class="lang-option">

<a class="nav-l4" data-locale="fr\_ca"  
href="https://www.intel.ca/content/www/ca/fr/homepage.html">

Canada (Français)

</a>

</li>

</ul>

</div>

</div>

</div>

</div>

</div>

<!-- END: NON-sign in panel -->

```
<button type="button" title="Search intel.com" class="nav-link-icon toggle-
search collapsed" data-target="#simplify-search" aria-expanded="false" aria-
controls="simplify-search" data-mega-control="global-search">
```

```
<span class="sr-only">Toggle Search</span>
```

```
<span class="fa-global-search"></span>
```

```
</button>
```

```
<div class="mega-panel mega-search-panel collapse" id="simplify-search"
aria-expanded="false" aria-selected="false" aria-collapsed="true" document-
height="true">
```

```
<div class="mega-panel-wrap">
```

```
<div class="mega-panel-body">
```

```
<div class="panel-content">
```

```
<div class="search-component search-component" data-igm-
search-content="">
```

```
<form class="mega-search-form search item" data-igm-search-
control="" name="hpsform-new" id="hpsform-new"
action="/content/www/us/en/search.html" role="search" onsubmit="return
inputSearch()">
```

```
<button type="submit" class="btn-mega-search icon" aria-
label="Search" tabindex="-1">
```

```
<span class="sr-only">Search</span>
```

```
<span class="fa-global-search"></span>
```

```
</button>
```

```
<label for="mobile-search">
```

```
<span class="sr-only">&lt;</span>
```

```
<input id="toplevelcategory" name="toplevelcategory"
type="hidden" value="none">
```

```
<input id="query" name="query" type="hidden"
value="">
```

```

        <input data-tabindex="1" class="form-control" data-
search-input="" id="mobile-search" name="keyword" type="text" data-igm-
search-input="" title="Search" autocomplete="off" data-target-result="#igm-
search-result" aria-controls="mega-results-overlay" aria-label="Search
Intel.com" placeholder="Search Intel.com">
        </label>

```

```

        <button type="button" id="cls-btn-advanced" class="btn-
mega-close fa-cancel-1 hide-flyout" aria-label="Clear Search Term" data-clear-
input="clear-input">

```

```

        <span class="sr-
only">Close Search Panel</span>

```

```

        </button>

```

```

        <button type="button" id="advanced-btn" class="btn-
advance-filter fa-sliders hide-flyout" aria-label="Advanced Search Panel" data-
mega-advanced-search="advanced-search">

```

```

        <span class="sr-only">Advanced Search</span>
        </button>

```

```

    </form>

```

```

    <!--

```

```

        'hidden' class is conditionally removed on load @ intel.search-
dropdown.js

```

```

    -->

```

```

    <div class="results-overlay mega-results-overlay search-quick-
links" aria-live="off" id="mega-results-overlay" data-
component="wa_skip_track">

```

```

        <div class="mega-close-container">

```

```

            <button aria-
label="Close search panel" class="btn-icon no-style close-result-toggle flyout-
close" data-mega-close="global-search">

```

```

                close

```

```

            </button>

```

```

        </div>

```

```

    <!-- Search Result Typeahead -->

```

```

    <div class="results-typeahead collapse" id="igm-search-
result" data-igm-search-results="">

```

```

        <div class="overlay-content">

```

```

            <!--<h3>Top Results </h3>-->

```

```

            <!-- added content-quick-search class -->

```

```

            <div class="content-quick-search">

```

```

                </div>

```

```

        </div>

```

```

        <div class="search-info">

```

```

            <a href="javascript:void();" class="login-toggle" data-
activate-mega-control="signin">

```

```

                Sign In</a> to access restricted content

```

```

        </div>

```

```

        </div>
        <!-- Recent Searches: 1) display default search info if no search
terms is available -->
        <!-- Recent Searches: 2) display recenter terms when available
and hide default search info -->
        <div class="results-recent collapse" data-igm-search-
related="">
            <div>
                <!-- default search info -->
                <div class="content-search-block content-search-info">
                    <h3>Using Intel.com Search</h3>
                    <p>You can easily search the entire Intel.com site in
several ways.</p>
                    <ul>
                        <li>
                            Brand Name:
                            <strong>
                                Core i9
                            </strong>
                        </li>
                        <li>
                            Document Number:
                            <strong>
                                123456
                            </strong>
                        </li>
                        <li>
                            Code Name:
                            <strong>
                                Alder Lake
                            </strong>
                        </li>
                        <li>
                            Special Operators:
                            <strong>
                                "Ice Lake", Ice AND Lake, Ice OR Lake, Ice*
                            </strong>
                        </li>
                    </ul>
                </div>
                <!-- quick links is always visible on the recents overlay -->
                <div class="content-search-block content-quick-links">
                    <h3>Quick Links</h3>
                    <p>You can also try the quick links below to see results
for most popular searches.</p>
                    <ul>
                        <!--<li>
                            <a class="quick-link" rel="noopener noreferrer"
href=https://ark.intel.com?
wapkw=quicklink:product-specifications>
                                Product Specifications
                            </a>
                        </li>-->
                        <li>

```

```

<a class="quick-link" rel="noopener noreferrer"
href="https://www.intel.com/content/www/us/en/products/overview.html?
wapkw=quicklink:products">
    Product Information
</a>
</li>
<li><a class="quick-link" rel="noopener noreferrer"
href="https://www.intel.com/content/www/us/en/support.html?
wapkw=quicklink:support">
    Support
</a>
</li>
<li>
<a class="quick-link" rel="noopener noreferrer"
href="https://downloadcenter.intel.com?wapkw=quicklink:download-center">
    Drivers & Software
</a>
</li>
</ul>
</div>
<!-- recent search terms -->
<div class="results-overlay results-recent results
component content-search-block content-recent" data-
component="wa_skip_track" data-component-id="1">
    <div class="overlay-content recent-searches-terms
hidden">
        <h3>Recent Searches</h3>
    </div>
</div>
</div>
<div class="search-info">
    <a href="javascript:void();" class="login-toggle" data-
activate-mega-control="signin">
        Sign In</a> to access restricted content
    </div>
</div>

    <div class="results-advanced collapse" data-igm-advanced-
search="">
        <div
class="overlay-content">
            <!-- default search info -->

            <div class="content-search-block content-search-info component" data-
component="wa_skip_track" data-component-id="1">

                <h3>Advanced Search</h3>

                <div class="controls-wrapper">

                    <div class="controls">

                        <div class="input-group select-control">

```

```

        <select class="documentation-card-version-select"
name="find-results" id="find-results">

        <option value="All of these terms"
selected="">All of these terms</option>

        <option value="Any of these terms">Any of
these terms</option>

        <option value="Exact term only">Exact term
only</option>

        </select>

        <label class="select-label" for="find-results">Find
results with</label>

    </div>

```

```

    <div class="input-group select-control">
        <select class="selectAdvanced"
name="show-results-from" id="show-results-from">
            <option value="allResults"
selected="" aria-label="all Results">
                All Results
            </option>
            <option value="Products" aria-
label="Products">
                Product Information
            </option>
            <option value="Support">
                Support
            </option>
            <option value="Downloads">
                Drivers & Software
            </option>
            <option value="Developers">
                Documentation & Resources
            </option>
            <!-- <option
value="Solutions">Solutions</option>-->
            <option value="Partners">
                Partners
            </option>
            <option value="forums">
                Communities
            </option>
            <option value="Corporate">
                Corporate
            </option>
        </select>
    </div>

```

```
<label class="select-label" for="show-results-  
from">Show results from</label>  
  
</div>  
  
<div class="controls">  
  <h3>Only search in</h3>  
  <div class="input-group" aria-label="Only Search In">  
    <label for="search_title">  
      <input name="search_title" id="search_title"  
type="checkbox">  
        Title</label>  
  
    <label for="search_description">  
      <input name="search_description"  
id="search_description" type="checkbox">  
        Description</label>  
  
    <label for="search_id">  
      <input name="search_id" id="search_id"  
type="checkbox">Content ID</label>  
  </div>  
  
  <button role="button" type="button" class="btn btn-  
primary" id="advanced-search-submit" data-wap="" data-wap-ref="search-  
button">  
    Search  
  </button>  
</div>  
</div>  
</div>  
</div>  
</div>  
</div>
```



<a

href="javascript:void();" class="login-toggle" data-activate-mega-control="signin">Sign in</a> to access

restricted content.

</div>  
</div>

</div>  
</div>  
</div>  
</div>  
</div>  
</div>

<script type="text/javascript">

```
var global_config = {  
  "icsUrl": "https://supporttickets.intel.com/services/oauth2/authorize?  
response_type=token&client_id=3MVG9QDx8IX8nP5Rh0X3B7gohGtUh8sjFQ8Tw_  
U8sS9_PoVrupDFwZ_nwLcze2n64IGBbGchyUb7_9W8n8pAV&redirect_uri=https  
%3A%2F%2Fwww.intel.com%2Fcontent%2Fwww%2Fus%2Fen%2Fsecure%2Fmy-  
intel%2Ftoken.html",  
  "ipsUrl": "https://premiersupport.intel.com/IPs/services/oauth2/authorize?  
response_type=token&client_id=3MVG9xOCXq4ID1uEa5F2ICYAp6mmKvTMIKbMI  
rsMKShY2oOqs1ETvPRjwmhoPivHd9_U53EzmiyYxn3nVpA9J&redirect_uri=https  
%3A%2F%2Fwww.intel.com%2Fcontent%2Fwww%2Fus%2Fen%2Fsecure%2Fmy-  
intel%2Ftoken.html"  
};
```

```
function inputSearch() {  
  if (globalSearch.advancedSearchFlag == 'true') {  
    var findResults = $("#find-results").val();  
    var showResults = $("#show-results-from").val();  
    var titleIsChecked = $("#search_title").is(":checked");  
    var descriptionIsChecked = $("#search_description").is(":checked");  
    var idIsChecked = $("#search_id").is(":checked");  
    var searchInputValue = $("#mobile-search").val();  
  
    if (findResults != 'All of these terms' || showResults != "allResults" ||  
titleIsChecked || descriptionIsChecked || idIsChecked) {  
      if (searchInputValue) {  
        return advancedSearch();  
      }  
      else {  
        return INTEL_TYPE_AHEAD.onSubmitHps('Search',  
'/content/www/us/en', 'en_US');  
      }  
    }  
  }  
  else {  
    return INTEL_TYPE_AHEAD.onSubmitHps('Search', '/content/www/us/en',  
'en_US');  
  }  
}
```

```

    }
    return INTEL_TYPE_AHEAD.onSubmitHps('Search', '/content/www/us/en',
'en_US');
}

var globalSearch = globalSearch || {};
globalSearch = {
  sharePointSearchPromote:true,
  searchProvider: 'coveo',
  baseSearchQuery: 'localecode:"en_US" NOT generic1:"false" ',
  langRootPath: '/content/www/us/en',
  headingTxt: 'Best Match',
  locale: 'en_US',
  typeAheadUrl: 'http://search.intel.com/SearchLookup/DataProvider.ashx',
  bestMatchUrl:
'https://platform.cloud.coveo.com/rest/search/v2/querySuggest',
  searchRealm: 'Default',
  bestMatchQ1: 'NAR',
  bestMatchQ2: 'en',
  bestMatchQ11: 'sptitle,description,url,thumbnailurl,reimaginerootlevel',
  progId: '',
  useEMTTags: true,
  defaultPage: 'search.html',
  ighfToken: 'xx6e698e8b-65ad-446c-9030-666d0ec92d15',
  searchHub: 'enterpriseSearch',
  newNavRedesign: true,
  advancedSearchFlag : 'true',
  gtvLabels: {
    suggested: "",
    products: "Product Information",
    support: "Support",
    developers: "Developers",
    drivers: "Drivers",
    forums: "Forums",
    specifications: "Specifications",
    download: "",
    searchesRelatedTo: "",
    search: "Search Intel.com",
    inLabel: "in",
    searchSupport: "Search Intel® Support",
    intelcom: "",
    forLabel: "for",
    allResults: "All Results",
    show: "Show",
    results: "Results"
  },
  mobileResults: "5",
  laptopResults: "10",
  EDCProgramIdentifier: "false"
};
</script>
</div>

```

```
        <!-- END MOBILE TOGGLE buttons -->
    </div>
</nav>
</header>
</div>
```

```
<div id="secondary-nav-1" class="component secondary-nav" data-  
component="subnavigation-breadcrumb" data-component-id="1">
```

```
    <div class="default-breadcrumb breadcrumb-bar-wrap-outer onlyTitle">  
        <nav role="" aria-label="Breadcrumbs" class="breadcrumb-bar-wrap  
initialized" style="width: 390px;">  
            <ol class="breadcrumb-bar scrolling-wrapper" aria-hidden="false">
```

```
<!-- Breadcrumb for Support Templates -->
```

```
                <li class="menuitem breadcrumb-current-page active" aria-  
current="page">  
                    <div class="leaf-node current-page"><span>3.4.2. Executing  
IPS File</span></div>  
                </li>
```

```
            </ol>  
            <button title="previous item" class="nav-paddle nav-prev fa-angle-  
left" type="button" style="display: none;"></button>  
            <button title="next item" class="nav-paddle nav-next fa-angle-right  
for-displaying" type="button" style="display: inline-block; right:  
0px;"></button>  
        </nav>
```

</div>

</div>

```
<script type="text/javascript">
  intel = intel || {};
  intel.utils = intel.utils || {};
  intel.utils.breadcrumbSource = "onlyTitle";
  intel.utils.isDefaultSecondaryNavNeeded = "true";
  intel.utils.displayTitle = "3.4.2. Executing IPS File";
</script>
```

```

  <script type="text/javascript">
    var globalHeader = globalHeader || {};
    globalHeader = {
      currentPath:
"/content/www/us/en/docs/programmable/683865/current/executing-ips-file",
      lanloc: "/us/en",
      lanLoc: "US/en",
      helpformurl: "",
      intelHeaderFooterVersion: "menu3",
      megaMenuPath: "/content/data/globalelements/US/en/globalnav4",
      globalBannerPath: "/content/data/globalelements/US/en/sitewide-
banner-placeholder",
      subMenuPath: "",
      isCHF:false,
      secureRedirectURL: "",
      excludeGlobalNav4: "false",
      allowSubNavigationBreadcrumb: "true",
    
```

```

        breadcrumbParentPagePath: "",
        myintelHeaderLinkAgs: "RDC Basic View,RDC BASIC View,RDC
Privileged Full,Intel Registration Center Access,IDZ-User,Basic Intel Registration
Role,Intel Developer Zone User,Khoros Customer Community Access,PSG
External Basic B2B Bundle,PSG External Customer Notification Subscriptions,PSG
External Digital Power Configuration Download,PSG External Material Declaration
Datasheet Download,PSG External Online Events Registration,PSG External
Quartus Web Edition license request,PSG External MAX PLUS II Baseline License
Request,PSG External Reference Design Request,PSG External IP Evaluation
Request,PSG External IP Early Access Request,PSG External Reference Designs
downloads,PSG External MAX PLUS II software downloads,PSG External Download
Center,PSG External University Program,PSG External Training,PSG External Self
Service Licensing Center,IRC User Access~RDC Privileged Full,Sales-PRM-
External-Customers Employee-User~RDC Basic View,RDC BASIC View,RDC
Privileged Full,IDZ-User,Basic Intel Registration Role,Intel Developer Zone
User,Khoros Customer Community Access,PSG External Basic B2B Bundle,PSG
External Customer Notification Subscriptions,PSG External Digital Power
Configuration Download,PSG External Material Declaration Datasheet
Download,PSG External Online Events Registration,PSG External Quartus Web
Edition license request,PSG External MAX PLUS II Baseline License Request,PSG
External Reference Design Request,PSG External IP Evaluation Request,PSG
External IP Early Access Request,PSG External Reference Designs downloads,PSG
External MAX PLUS II software downloads,PSG External Download Center,PSG
External University Program,PSG External Training,PSG External Self Service
Licensing Center,IRC User Access",
    }
</script>

```

```

<script src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/
pages/nav.min.js" defer=""></script>
<script src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/
pages/secondaryNav.min.js" defer=""></script>
</div>

```

```

<section data-scroll-track="false">
  <div class="container">
    <div class="row">
      <div class="col-xs-12 pull-right persistent-cta-integration-globalNav"
id="alertMsg">
        <div id="alertSupport">
          <div class="browser_detect browser_detect_not_fixed"
id="browserdetectid" style="display:none;">
            <p>The browser version you are using is not recommended for
this site.<br>Please consider upgrading to the latest version of your browser by
clicking one of the following links.</p>
            <div class="browser_types">
              <ul>

```

```

        <li><a
href="https://support.apple.com/downloads/safari">Safari</a></li>

        <li><a
href="https://support.google.com/chrome/answer/95346?hl=en">Chrome</
a></li>

        <li><a
href="https://www.microsoft.com/en-us/edge">Edge</a></li>

        <li><a
href="https://www.mozilla.org/en-US/firefox/new/">Firefox</a></li>
    </ul>
</div>
</div>
</div>
</div>
</div>
</div>
</div>
</section>

<main id="primary-content">
```

```

<link rel="stylesheet"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
udeDocumentationDetail.min.css" type="text/css">
<script src="/etc.clientlibs/clientlibs/granite/jquery.min.js"></script>
<script src="/etc.clientlibs/clientlibs/granite/utils.min.js"></script>
<script src="/etc.clientlibs/clientlibs/granite/jquery/granite.min.js"></script>
<script src="/etc.clientlibs/foundation/clientlibs/jquery.min.js"></script>
<script src="/etc.clientlibs/settings/wcm/clientlibs/ver/220720/foundation/
jquery.min.js"></script>
<script src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/
pages/udeDocumentationDetail.min.js"></script>
```

```

<div class="page-content">
    <div class="marquee">
```

```
<input type="hidden" name="ude-GroupId" id="DocumentationGroupId"
value="683865">
<input type="hidden" name="ude-bookId-node"
id="DocumentationPublicationId" value="666495">
<input type="hidden" name="ude-search"
id="DocumentationSearchUrlHiddenField"
value="/content/www/us/en/docs/programmable/683865/current">
```

```
<div id="marquee-1" class="component intel-ws theme-dark-default marquee-
documentation-detail force-background solid brand-primary" data-
component="marquee" data-component-id="1">
```

```
    <div class="container">
      <div class="row">
        <div class="col-xs-12">
          <p></p>
        </div>
      </div>
      <div class="row">
        <div class="col-xs-12 col-md-8">
          <h2 class="h1">Intel® MAX® 10 FPGA Configuration User
Guide</h2>
        </div>
```

```
        <div class="col-xs-12 col-md-4 cta-col bookmark-able">
```

```
          <a href="https://cdrdv2.intel.com/v1/dl/getContent/666495?
fileName=ug-683865-666495.pdf" class="btn btn-secondary">Download</a>
```



```
        <button data-wap="" data-wap_ref="bookmark-button"
class="bookmark-toggle btn btn-secondary"
onclick="toggleBookmark('bookmarkinput')" onload="onLoad()" style="display:
none;">Bookmark<span class="sr-only"></span>
        <input type="checkbox" id="bookmarkinput" tabindex="-1">
```

```
    </button>
```

```
    </div>
```

```
</div>
```

```
<div class="row collection-row hidden-info" style="display: none;">
```

```
    <div class="col-xs-12 in-collections">
```

```
        <span class="collections-label"></span>
```

```
        <div class="collections">
```

```
        </div>
```

```
    </div>
```

```
</div>
```

```
<div class="row info-row hidden-info">
```

```
    <div class="col-xs-12 col-md-8">
```

```
        <div class="info-col">
```

```
            <span class="label">ID</span>
```

```
            <span class="value">683865</span>
```

```
        </div>
```

```
        <div class="info-col">
```

```
            <span class="label">Date</span>
```

```
            <span class="value">5/26/2022</span>
```

```
        </div>
```

```
        <div class="marquee-search">
```

```
            <input type="hidden" name="currentPageVersion"
```

```
id="CurrentPageVersionHiddenField" value="current">
```

```
            <label for="marquee-search-select" class="marquee-search-select-
label">
```

```
                <span>Version</span>
```

```
                <label class="single_version">current</label>
```

```
            </label>
```

```
        </div>
```

```
        <div class="additional-info">
```

```
            <span>Public</span>
```

```
        </div>
```

```
    </div>
```

```
</div>
```

```

<div class="row showButtonRow">
  <div class="view-more-button">

    <button onclick="showMore()" class="show-more-show-less show-
more">View More<span class="fa-angle-down"></span></button>
    <button onclick="showLess()" class="show-more-show-less see-less
hidden-info">See Less<span class="fa-angle-up"></span></button>

  </div>
</div>
</div>
</div>
</div>

<div class="intel-ws ude ude-documentation-details">
  <div class="ude-documentation-details-container upe-spynav-content
container">
    <div class="ude-documentation-details-main row">
      <div class="toc tableOfContent">

<div id="tableOfContent-1" class="component ude-documentation-details-nav-
wrapper col-xs-12 col-lg-3 " data-component="tableOfContent" data-component-
id="1">
  <div class="ude-documentation-details-mobile-navigation">

    <div class="row ude-document-details-info hidden-lg hidden-xl">

<div id="internalUser" class="col-md-12 col-xs-12" style="display: none;">
  <div class="col-lg-10 col-xs-12">

```

<p><span class="disclaimer">Visible to Intel only — </span>

<span class="label">GUID:</span>

<span class="info">bqj1472107367779</span></p>

<p><span class="label"></span> <span class="info">Ixiasoft</span>  
</p>

</div>  
<div class="col-lg-2 col-xs-12">  
 <p class="cta-item">  
 <a class="btn btn-tertiary"  
href="/content/www/us/en/secure/design/internal/content-details.html?  
DocID="><span>View Details</span></a>  
 </p>  
</div>  
</div>

</div>

<div class="filter-dropdown-search-wrapper component disabled" data-  
component="wa\_skip\_track" data-component-id="1">  
 <label for="documentation-details-search" class="filter-dropdown-  
search-label">  
 <input class="filter-dropdown-search" type="search"  
id="documentation-details-search" aria-label="Search for filter" size="10"  
placeholder="Search this document">  
 <button class="btn-cancel-search" data-close="documentation-  
details-search"><span class="sr-only">Close Filter Modal</span><span  
class="fa-cancel-1"></span></button>  
 </label>  
</div>  
 <a href="#table-of-contents" class="btn btn-secondary hub-toggle  
>Document Table of Contents</a>  
 <div id="table-of-contents" class="hub-content off-screen">  
 <div class="hub-content-header">  
 <div class="container">  
 <a class="back-hub-link" href="#">Document Table of  
Contents</a>  
 </div>  
 </div>  
 <div class="hub-content-wrap">

<a  
href="/content/www/us/en/docs/programmable/683865/current/fpga-

configuration-overview.html#dropdown-1-0" class="hub-toggle"><span class="hub-toggle-content">1. Intel® MAX® 10 FPGA Configuration Overview</span></a>

<a href="/content/www/us/en/docs/programmable/683865/current/fpga-configuration-schemes-and-features.html#dropdown-1-1" class="hub-toggle"><span class="hub-toggle-content">2. Intel® MAX® 10 FPGA Configuration Schemes and Features</span></a>

<a href="/content/www/us/en/docs/programmable/683865/current/fpga-configuration-design-guidelines.html#dropdown-1-2" class="hub-toggle"><span class="hub-toggle-content">3. Intel® MAX® 10 FPGA Configuration Design Guidelines</span></a>

<a href="/content/www/us/en/docs/programmable/683865/current/fpga-configuration-ip-core-implementation.html#dropdown-1-3" class="hub-toggle"><span class="hub-toggle-content">4. Intel® MAX® 10 FPGA Configuration IP Core Implementation Guides</span></a>

<a href="/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-references.html#dropdown-1-4" class="hub-toggle"><span class="hub-toggle-content">5. Dual Configuration Intel® FPGA IP Core References</span></a>

<a href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-core-references.html#dropdown-1-5" class="hub-toggle"><span class="hub-toggle-content">6. Unique Chip ID Intel® FPGA IP Core References</span></a>

<a href="/content/www/us/en/docs/programmable/683865/current/document-revision-history-for-the-fpga.html#dropdown-1-6" class="hub-toggle"><span class="hub-toggle-content">7. Document Revision History for the Intel® MAX® 10 FPGA Configuration User Guide</span></a>

</div>  
</div>

<div id="dropdown-1-1" class="hub-content off-screen">  
 <div class="hub-content-header">  
 <div class="container">  
 <a class="back-hub-link" href="/content/www/us/en/docs/programmable/683865/current/fpga-configuration-schemes-and-features.html">2. Intel® MAX® 10 FPGA Configuration Schemes and Features</a>  
 </div>  
 </div>

```
<div class="hub-content-wrap">
```

```
    <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
schemes.html#dropdown-1-1-0" class="hub-toggle "><span class="hub-toggle-
content">2.1. Configuration Schemes</span></a>
```

```
    <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
features.html#dropdown-1-1-1" class="hub-toggle "><span class="hub-toggle-
content">2.2. Configuration Features</span></a>
```

```
    <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
details.html#dropdown-1-1-2" class="hub-toggle "><span class="hub-toggle-
content">2.3. Configuration Details</span></a>
```

```
</div>
</div>
```

```
    <div id="dropdown-1-1-0" class="hub-content off-screen">
      <div class="hub-content-header">
        <div class="container">
          <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/configuration-
schemes.html">2.1. Configuration Schemes</a>
        </div>
      </div>
    <div class="hub-content-wrap">
```

```
      <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-
configuration.html#dropdown-1-1-0-0" class="hub-toggle"><span class="hub-
toggle-content">2.1.1. JTAG Configuration</span></a>
```

```
      <a
href="/content/www/us/en/docs/programmable/683865/current/internal-
configuration.html#dropdown-1-1-0-1" class="hub-toggle"><span class="hub-
toggle-content">2.1.2. Internal Configuration</span></a>
```

```
    </div>
  </div>
```

```
screen">
    <div class="hub-content-header">
```

```

                <div class="container">
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/jtag-
configuration.html">2.1.1. JTAG Configuration</a>

```

```
                </div>

```

```
            </div>

```

```
        <div class="hub-content-wrap">

```

```

            <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-
pins.html#dropdown-1-1-0-0-0" class="hub-toggle"><span class="hub-toggle-
content">2.1.1.1. JTAG Pins</span></a>

```

```

        </div>

```

```
    </div>

```

```

        <div id="dropdown-1-1-0-1" class="hub-content off-
screen">

```

```
            <div class="hub-content-header">

```

```
                <div class="container">

```

```
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/internal-
configuration.html">2.1.2. Internal Configuration</a>

```

```
                </div>

```

```
            </div>

```

```
        <div class="hub-content-wrap">

```

```

            <a
href="/content/www/us/en/docs/programmable/683865/current/internal-
configuration-modes.html#dropdown-1-1-0-1-0" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.1. Internal Configuration Modes</span></a>

```

```

            <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory.html#dropdown-1-1-0-1-1" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.2. Configuration Flash Memory</span></a>

```

```

            <a
href="/content/www/us/en/docs/programmable/683865/current/in-system-
programming.html#dropdown-1-1-0-1-2" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.3. In-System Programming</span></a>

```

```

<a
href="/content/www/us/en/docs/programmable/683865/current/initialization-
configuration-bits.html#dropdown-1-1-0-1-3" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.4. Initialization Configuration
Bits</span></a>

```

```

<a
href="/content/www/us/en/docs/programmable/683865/current/internal-
configuration-time.html#dropdown-1-1-0-1-4" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.5. Internal Configuration Time</span></a>

```

```

</div>
</div>

```

```

<div id="dropdown-1-1-0-1-1" class="hub-
content off-screen">
    <div class="hub-content-header">
        <div class="container">
            <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory.html">2.1.2.2. Configuration Flash Memory</a>
            </div>
        </div>
        <div class="hub-content-wrap">

```

```

            <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory-sectors.html#dropdown-1-1-0-1-1--0" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.2.1. Configuration Flash Memory
Sectors</span></a>

```

```

            <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory-programming-time.html#dropdown-1-1-0-1-1--1" class="hub-
toggle"><span class="hub-toggle-content">2.1.2.2.2. Configuration Flash
Memory Programming Time</span></a>

```

```

        </div>
    </div>

```

```

<div id="dropdown-1-1-0-1-2" class="hub-
content off-screen">

```

```
        <div class="hub-content-header">
            <div class="container">
                <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/in-system-
programming.html">2.1.2.3. In-System Programming</a>
            </div>
        </div>
    </div class="hub-content-wrap">
```

```
        <a
href="/content/www/us/en/docs/programmable/683865/current/isp-
clamp.html#dropdown-1-1-0-1-2--0" class="hub-toggle"><span class="hub-
toggle-content">2.1.2.3.1. ISP Clamp</span></a>
```

```
        <a
href="/content/www/us/en/docs/programmable/683865/current/real-time-
isp.html#dropdown-1-1-0-1-2--1" class="hub-toggle"><span class="hub-toggle-
content">2.1.2.3.2. Real-Time ISP</span></a>
```

```
        <a
href="/content/www/us/en/docs/programmable/683865/current/isp-and-real-
time-isp-instructions.html#dropdown-1-1-0-1-2--2" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.3.3. ISP and Real-Time ISP
Instructions</span></a>
```

```
    </div>
</div>
```

```
    <div id="dropdown-1-1-1" class="hub-content off-screen">
        <div class="hub-content-header">
            <div class="container">
                <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/configuration-
features.html">2.2. Configuration Features</a>
            </div>
        </div>
    </div class="hub-content-wrap">
```



```

        <a
href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade.html#dropdown-1-1-1-0" class="hub-toggle"><span class="hub-toggle-
content">2.2.1. Remote System Upgrade</span></a>

```

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
design-security.html#dropdown-1-1-1-1" class="hub-toggle"><span class="hub-
toggle-content">2.2.2. Configuration Design Security</span></a>

```

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/seu-mitigation-
and-configuration-error.html#dropdown-1-1-1-2" class="hub-toggle"><span
class="hub-toggle-content">2.2.3. SEU Mitigation and Configuration Error
Detection</span></a>

```

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
data-compression.html#dropdown-1-1-1-3" class="hub-toggle"><span
class="hub-toggle-content">2.2.4. Configuration Data
Compression</span></a>

```

```

    </div>
</div>

```

```

    <div id="dropdown-1-1-1-0" class="hub-content off-
screen">

```

```

        <div class="hub-content-header">
            <div class="container">
                <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade.html">2.2.1. Remote System Upgrade</a>
            </div>
        </div>
        <div class="hub-content-wrap">

```

```

            <a
href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade-flow.html#dropdown-1-1-1-0-0" class="hub-toggle"><span class="hub-
toggle-content">2.2.1.1. Remote System Upgrade Flow</span></a>

```

```

            <a
href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade-circuitry.html#dropdown-1-1-1-0-1" class="hub-toggle"><span

```

class="hub-toggle-content">2.2.1.2. Remote System Upgrade  
Circuitry</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/user-watchdog-  
timer.html#dropdown-1-1-1-0-2" class="hub-toggle"><span class="hub-toggle-  
content">2.2.1.3. User Watchdog Timer</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/dual-  
configuration-core-79122.html#dropdown-1-1-1-0-3" class="hub-toggle"><span  
class="hub-toggle-content">2.2.1.4. Dual Configuration Intel® FPGA IP  
Core</span></a>

</div>  
</div>

<div id="dropdown-1-1-1-0-1" class="hub-  
content off-screen">  
<div class="hub-content-header">  
<div class="container">  
<a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/remote-system-  
upgrade-circuitry.html">2.2.1.2. Remote System Upgrade Circuitry</a>  
</div>  
</div>  
<div class="hub-content-wrap">

<a  
href="/content/www/us/en/docs/programmable/683865/current/remote-system-  
upgrade-circuitry-signals.html#dropdown-1-1-1-0-1--0" class="hub-  
toggle"><span class="hub-toggle-content">2.2.1.2.1. Remote System Upgrade  
Circuitry Signals</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/remote-system-  
upgrade-circuitry-input.html#dropdown-1-1-1-0-1--1" class="hub-toggle"><span  
class="hub-toggle-content">2.2.1.2.2. Remote System Upgrade Circuitry Input  
Control</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/remote-system-  
upgrade-input-register.html#dropdown-1-1-1-0-1--2" class="hub-toggle"><span

class="hub-toggle-content">2.2.1.2.3. Remote System Upgrade Input Register</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/remote-system-upgrade-status-registers.html#dropdown-1-1-1-0-1--3" class="hub-toggle"><span class="hub-toggle-content">2.2.1.2.4. Remote System Upgrade Status Registers</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/master-state-machine.html#dropdown-1-1-1-0-1--4" class="hub-toggle"><span class="hub-toggle-content">2.2.1.2.5. Master State Machine</span></a>

</div>  
</div>

<div id="dropdown-1-1-1-1" class="hub-content off-screen">

<div class="hub-content-header">  
<div class="container">  
<a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/configuration-design-security.html">2.2.2. Configuration Design Security</a>  
</div>  
</div>  
<div class="hub-content-wrap">

<a  
href="/content/www/us/en/docs/programmable/683865/current/aes-encryption-protection.html#dropdown-1-1-1-1-0" class="hub-toggle"><span class="hub-toggle-content">2.2.2.1. AES Encryption Protection</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id.html#dropdown-1-1-1-1-1" class="hub-toggle"><span class="hub-toggle-content">2.2.2.2. Unique Chip ID</span></a>

[<a href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-mode.html#dropdown-1-1-1-1-2" class="hub-toggle"><span class="hub-toggle-content">2.2.2.3. JTAG Secure Mode</span></a>](/content/www/us/en/docs/programmable/683865/current/jtag-secure-mode.html#dropdown-1-1-1-1-2)

[<a href="/content/www/us/en/docs/programmable/683865/current/verify-protect.html#dropdown-1-1-1-1-3" class="hub-toggle"><span class="hub-toggle-content">2.2.2.4. Verify Protect</span></a>](/content/www/us/en/docs/programmable/683865/current/verify-protect.html#dropdown-1-1-1-1-3)

[<a href="/content/www/us/en/docs/programmable/683865/current/jtag-instruction-availability.html#dropdown-1-1-1-1-4" class="hub-toggle"><span class="hub-toggle-content">2.2.2.5. JTAG Instruction Availability</span></a>](/content/www/us/en/docs/programmable/683865/current/jtag-instruction-availability.html#dropdown-1-1-1-1-4)

[<a href="/content/www/us/en/docs/programmable/683865/current/configuration-flash-memory-permissions.html#dropdown-1-1-1-1-5" class="hub-toggle"><span class="hub-toggle-content">2.2.2.6. Configuration Flash Memory Permissions</span></a>](/content/www/us/en/docs/programmable/683865/current/configuration-flash-memory-permissions.html#dropdown-1-1-1-1-5)

</div>  
</div>

<div id="dropdown-1-1-1-1-0" class="hub-content off-screen">  
    <div class="hub-content-header">  
        <div class="container">  
            <a class="back-hub-link" href="/content/www/us/en/docs/programmable/683865/current/aes-encryption-protection.html">2.2.2.1. AES Encryption Protection</a>  
        </div>  
    </div>  
    <div class="hub-content-wrap">

        <a href="/content/www/us/en/docs/programmable/683865/current/encryption-and-decryption.html#dropdown-1-1-1-1-0--0" class="hub-toggle"><span class="hub-toggle-content">2.2.2.1.1. Encryption and Decryption</span></a>

    </div>  
</div>

```
content off-screen">
    <div id="dropdown-1-1-1-1-1" class="hub-
    <div class="hub-content-header">
        <div class="container">
            <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/unique-chip-
id.html">2.2.2.2. Unique Chip ID</a>
        </div>
    </div>
    <div class="hub-content-wrap">

        <a
href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-
core-80250.html#dropdown-1-1-1-1-1-0" class="hub-toggle"><span
class="hub-toggle-content">2.2.2.2.1. Unique Chip ID Intel® FPGA IP
Core</span></a>

    </div>
</div>
```

```
content off-screen">
    <div id="dropdown-1-1-1-1-2" class="hub-
    <div class="hub-content-header">
        <div class="container">
            <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-
mode.html">2.2.2.3. JTAG Secure Mode</a>
        </div>
    </div>
    <div class="hub-content-wrap">

        <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-
mode-instructions.html#dropdown-1-1-1-1-2-0" class="hub-toggle"><span
class="hub-toggle-content">2.2.2.3.1. JTAG Secure Mode
Instructions</span></a>

    </div>
</div>
```

```
content off-screen">
    <div id="dropdown-1-1-1-1-5" class="hub-
```

```

                <div class="hub-content-header">
                    <div class="container">
                        <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory-permissions.html">2.2.2.6. Configuration Flash Memory
Permissions</a>

```

```

                    </div>
                </div>
            <div class="hub-content-wrap">

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/flash-region-
access-control-and-immutability.html#dropdown-1-1-1-1-5--0" class="hub-
toggle"><span class="hub-toggle-content">2.2.2.6.1. Flash Region Access
Control and Immutability</span></a>

```

```

            </div>
        </div>

```

```

        <div id="dropdown-1-1-1-2" class="hub-content off-
screen">

```

```

            <div class="hub-content-header">
                <div class="container">
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/seu-mitigation-
and-configuration-error.html">2.2.3. SEU Mitigation and Configuration Error
Detection</a>

```

```

                </div>
            </div>
        <div class="hub-content-wrap">

```

```

            <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
error-detection.html#dropdown-1-1-1-2-0" class="hub-toggle"><span
class="hub-toggle-content">2.2.3.1. Configuration Error Detection</span></a>

```

```

            <a
href="/content/www/us/en/docs/programmable/683865/current/user-mode-error-
detection.html#dropdown-1-1-1-2-1" class="hub-toggle"><span class="hub-
toggle-content">2.2.3.2. User Mode Error Detection</span></a>

```

```

            <a
href="/content/www/us/en/docs/programmable/683865/current/error-detection-

```

timing.html#dropdown-1-1-1-2-2" class="hub-toggle"><span class="hub-toggle-content">2.2.3.3. Error Detection Timing</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/recovering-from-crc-errors.html#dropdown-1-1-1-2-3" class="hub-toggle"><span class="hub-toggle-content">2.2.3.4. Recovering from CRC Errors</span></a>

</div>  
</div>

<div id="dropdown-1-1-1-2-1" class="hub-content off-screen">  
<div class="hub-content-header">  
<div class="container">  
<a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/user-mode-error-detection.html">2.2.3.2. User Mode Error Detection</a>  
</div>  
</div>  
<div class="hub-content-wrap">

<a  
href="/content/www/us/en/docs/programmable/683865/current/error-detection-block.html#dropdown-1-1-1-2-1--0" class="hub-toggle"><span class="hub-toggle-content">2.2.3.2.1. Error Detection Block</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/change-edreg-jtag-instruction.html#dropdown-1-1-1-2-1--1" class="hub-toggle"><span class="hub-toggle-content">2.2.3.2.2. CHANGE\_EDREG JTAG Instruction</span></a>

</div>  
</div>

<div id="dropdown-1-1-1-2-2" class="hub-content off-screen">  
<div class="hub-content-header">  
<div class="container">  
<a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/error-detection-timing.html">2.2.3.3. Error Detection Timing</a>

```
</div>
</div>
<div class="hub-content-wrap">
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/error-detection-
frequency.html#dropdown-1-1-1-2-2--0" class="hub-toggle"><span class="hub-
toggle-content">2.2.3.3.1. Error Detection Frequency</span></a>
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/cyclic-
redundancy-check-calculation-timing.html#dropdown-1-1-1-2-2--1" class="hub-
toggle"><span class="hub-toggle-content">2.2.3.3.2. Cyclic Redundancy Check
Calculation Timing</span></a>
```

```
</div>
</div>
```

```
<div id="dropdown-1-1-2" class="hub-content off-screen">
  <div class="hub-content-header">
    <div class="container">
      <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/configuration-
details.html">2.3. Configuration Details</a>
    </div>
  </div>
</div>
<div class="hub-content-wrap">
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
sequence.html#dropdown-1-1-2-0" class="hub-toggle"><span class="hub-
toggle-content">2.3.1. Configuration Sequence</span></a>
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
pins.html#dropdown-1-1-2-1" class="hub-toggle"><span class="hub-toggle-
content">2.3.2. Intel® MAX® 10 Configuration Pins</span></a>
```



</div>  
</div>

<div id="dropdown-1-1-2-0" class="hub-content off-screen">

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<div class="container">  
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href="/content/www/us/en/docs/programmable/683865/current/configuration-  
sequence.html">2.3.1. Configuration Sequence</a>  
</div>  
</div>  
<div class="hub-content-wrap">

<a  
href="/content/www/us/en/docs/programmable/683865/current/power-  
up.html#dropdown-1-1-2-0-0" class="hub-toggle"><span class="hub-toggle-  
content">2.3.1.1. Power-up</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/configuration.ht  
ml#dropdown-1-1-2-0-1" class="hub-toggle"><span class="hub-toggle-  
content">2.3.1.2. Configuration</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/configuration-  
error-handling.html#dropdown-1-1-2-0-2" class="hub-toggle"><span  
class="hub-toggle-content">2.3.1.3. Configuration Error Handling</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/initialization.html  
#dropdown-1-1-2-0-3" class="hub-toggle"><span class="hub-toggle-  
content">2.3.1.4. Initialization</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/user-  
mode.html#dropdown-1-1-2-0-4" class="hub-toggle"><span class="hub-toggle-  
content">2.3.1.5. User Mode</span></a>

</div>  
</div>

```

content off-screen">
    <div id="dropdown-1-1-2-0-0" class="hub-
    <div class="hub-content-header">
        <div class="container">
            <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/power-
up.html">2.3.1.1. Power-up</a>
        </div>
    </div>
    <div class="hub-content-wrap">

        <a
href="/content/www/us/en/docs/programmable/683865/current/por-monitored-
voltage-rails-for-single.html#dropdown-1-1-2-0-0--0" class="hub-toggle"><span
class="hub-toggle-content">2.3.1.1.1. POR Monitored Voltage Rails for Single-
supply and Dual-supply Intel® MAX® 10 Devices</span></a>

        <a
href="/content/www/us/en/docs/programmable/683865/current/monitored-
power-supplies-ramp-time-requirement.html#dropdown-1-1-2-0-0--1"
class="hub-toggle"><span class="hub-toggle-content">2.3.1.1.2. Monitored
Power Supplies Ramp Time Requirement for Intel® MAX® 10
Devices</span></a>

    </div>
</div>

```

```

<div id="dropdown-1-2" class="hub-content off-screen">
    <div class="hub-content-header">
        <div class="container">

```

[3. Intel® MAX® 10 FPGA Configuration Design Guidelines](/content/www/us/en/docs/programmable/683865/current/fpga-configuration-design-guidelines.html)

[3.1. Dual-Purpose Configuration Pins](/content/www/us/en/docs/programmable/683865/current/dual-purpose-configuration-pins.html#dropdown-1-2-0)

[3.2. Configuring Intel® MAX® 10 Devices using JTAG Configuration](/content/www/us/en/docs/programmable/683865/current/configuring-devices-using-jtag-configuration.html#dropdown-1-2-1)

[3.3. Configuring Intel® MAX® 10 Devices using Internal Configuration](/content/www/us/en/docs/programmable/683865/current/configuring-devices-using-internal-.html#dropdown-1-2-2)

[3.4. Implementing ISP Clamp in Intel® Quartus® Prime Software](/content/www/us/en/docs/programmable/683865/current/implementing-isp-clamp-in-software.html#dropdown-1-2-3)

[3.5. Accessing Remote System Upgrade through User Logic](/content/www/us/en/docs/programmable/683865/current/accessing-remote-system-upgrade-through.html#dropdown-1-2-4)

[3.6. Error Detection](/content/www/us/en/docs/programmable/683865/current/error-detection.html#dropdown-1-2-5)

[3.7. Enabling Data Compression](/content/www/us/en/docs/programmable/683865/current/enabling-data-compression.html#dropdown-1-2-6)

[3.8. AES Encryption](/content/www/us/en/docs/programmable/683865/current/aes-encryption.html#dropdown-1-2-7)

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-
design-example.html#dropdown-1-2-8" class="hub-toggle "><span class="hub-
toggle-content">3.9. Intel® MAX® 10 JTAG Secure Design
Example</span></a>

```

```

    </div>
</div>

```

```

        <div id="dropdown-1-2-0" class="hub-content off-screen">
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                <div class="container">
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/dual-purpose-
configuration-pins.html">3.1. Dual-Purpose Configuration Pins</a>
                </div>
            </div>
            <div class="hub-content-wrap">

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/guidelines-dual-
purpose-configuration-pin.html#dropdown-1-2-0-0" class="hub-toggle"><span
class="hub-toggle-content">3.1.1. Guidelines: Dual-Purpose Configuration
Pin</span></a>

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/enabling-dual-
purpose-pin.html#dropdown-1-2-0-1" class="hub-toggle"><span class="hub-
toggle-content">3.1.2. Enabling Dual-Purpose Pin</span></a>

```

```

            </div>
        </div>

```

```

        <div id="dropdown-1-2-0-0" class="hub-content off-
screen">
            <div class="hub-content-header">
                <div class="container">
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/guidelines-dual-
purpose-configuration-pin.html">3.1.1. Guidelines: Dual-Purpose Configuration
Pin</a>
                </div>
            </div>
            <div class="hub-content-wrap">

```

```

                                <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-pin-sharing-
behavior.html#dropdown-1-2-0-0-0" class="hub-toggle"><span class="hub-
toggle-content">3.1.1.1. JTAG Pin Sharing Behavior</span></a>

```

```

                                </div>
                                </div>

```

```

                                <div id="dropdown-1-2-1" class="hub-content off-screen">
                                <div class="hub-content-header">
                                <div class="container">
                                <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/configuring-
devices-using-jtag-configuration.html">3.2. Configuring Intel® MAX® 10 Devices
using JTAG Configuration</a>
                                </div>
                                </div>
                                <div class="hub-content-wrap">

```

```

                                <a
href="/content/www/us/en/docs/programmable/683865/current/auto-generating-
configuration-files.html#dropdown-1-2-1-0" class="hub-toggle"><span
class="hub-toggle-content">3.2.1. Auto-Generating Configuration Files for Third-
Party Programming Tools</span></a>

```

```

                                <a
href="/content/www/us/en/docs/programmable/683865/current/generating-third-
party-programming-files%20generating-third-party-programming-files
%20generating-third-party-programming-files.html#dropdown-1-2-1-1"
class="hub-toggle"><span class="hub-toggle-content">Generating Third-Party
Programming Files using Intel® Quartus® Prime Programmer</span></a>

```

```

                                <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-
configuration-setup.html#dropdown-1-2-1-2" class="hub-toggle"><span
class="hub-toggle-content">3.2.3. JTAG Configuration Setup</span></a>

```

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/icb-settings-in-
jtag-configuration.html#dropdown-1-2-1-3" class="hub-toggle"><span
class="hub-toggle-content">3.2.4. ICB Settings in JTAG
Configuration</span></a>

```

```

    </div>
</div>

```

```

        <div id="dropdown-1-2-2" class="hub-content off-screen">
            <div class="hub-content-header">
                <div class="container">
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/configuring-
devices-using-internal-.html">3.3. Configuring Intel® MAX® 10 Devices using
Internal Configuration</a>
                </div>
            </div>
            <div class="hub-content-wrap">

```

```

                    <a
href="/content/www/us/en/docs/programmable/683865/current/selecting-
internal-configuration-modes.html#dropdown-1-2-2-0" class="hub-
toggle"><span class="hub-toggle-content">3.3.1. Selecting Internal
Configuration Modes</span></a>

```

```

                    <a
href="/content/www/us/en/docs/programmable/683865/current/pof-and-icb-
settings.html#dropdown-1-2-2-1" class="hub-toggle"><span class="hub-toggle-
content">3.3.2. .pof and ICB Settings</span></a>

```

```

                    <a
href="/content/www/us/en/docs/programmable/683865/current/programming-
pof-into-internal-flash.html#dropdown-1-2-2-2" class="hub-toggle"><span
class="hub-toggle-content">3.3.3. Programming .pof into Internal
Flash</span></a>

```

```
</div>
</div>
```

```
<div id="dropdown-1-2-2-1" class="hub-content off-
screen">
```

```
<div class="hub-content-header">
  <div class="container">
    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/pof-and-icb-
settings.html">3.3.2. .pof and ICB Settings</a>
  </div>
</div>
<div class="hub-content-wrap">
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/auto-generated-
pof.html#dropdown-1-2-2-1-0" class="hub-toggle"><span class="hub-toggle-
content">3.3.2.1. Auto-Generated .pof</span></a>
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/generating-pof-
using-convert-programming.html#dropdown-1-2-2-1-1" class="hub-
toggle"><span class="hub-toggle-content">3.3.2.2. Generating .pof using
Convert Programming Files</span></a>
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/generating-third-
party-programming-files%20generating-third-party-programming-files
%20generating-third-party-programming-files-01.html#dropdown-1-2-2-1-2"
class="hub-toggle"><span class="hub-toggle-content">Generating Third-Party
Programming Files using Intel® Quartus® Prime Programmer</span></a>
```

```
</div>
</div>
```

```

        <div id="dropdown-1-2-3" class="hub-content off-screen">
            <div class="hub-content-header">
                <div class="container">
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/implementing-
isp-clamp-in-software.html">3.4. Implementing ISP Clamp in Intel® Quartus®
Prime Software</a>
                </div>
            </div>
            <div class="hub-content-wrap">

                <a
href="/content/www/us/en/docs/programmable/683865/current/creating-ips-
file.html#dropdown-1-2-3-0" class="hub-toggle"><span class="hub-toggle-
content">3.4.1. Creating IPS File</span></a>

                <a
href="/content/www/us/en/docs/programmable/683865/current/executing-ips-
file.html#dropdown-1-2-3-1" class="hub-toggle"><span class="hub-toggle-
content">3.4.2. Executing IPS File</span></a>

            </div>
        </div>

```

```

        <div id="dropdown-1-2-5" class="hub-content off-screen">
            <div class="hub-content-header">
                <div class="container">
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/error-
detection.html">3.6. Error Detection</a>
                </div>
            </div>
            <div class="hub-content-wrap">

```



[<a href="/content/www/us/en/docs/programmable/683865/current/verifying-error-detection-functionality.html#dropdown-1-2-5-0" class="hub-toggle"><span class="hub-toggle-content">3.6.1. Verifying Error Detection Functionality</span></a>](/content/www/us/en/docs/programmable/683865/current/verifying-error-detection-functionality.html#dropdown-1-2-5-0)

[<a href="/content/www/us/en/docs/programmable/683865/current/enabling-error-detection.html#dropdown-1-2-5-1" class="hub-toggle"><span class="hub-toggle-content">3.6.2. Enabling Error Detection</span></a>](/content/www/us/en/docs/programmable/683865/current/enabling-error-detection.html#dropdown-1-2-5-1)

[<a href="/content/www/us/en/docs/programmable/683865/current/accessing-error-detection-block-through.html#dropdown-1-2-5-2" class="hub-toggle"><span class="hub-toggle-content">3.6.3. Accessing Error Detection Block Through User Logic</span></a>](/content/www/us/en/docs/programmable/683865/current/accessing-error-detection-block-through.html#dropdown-1-2-5-2)

</div>  
</div>

<div id="dropdown-1-2-6" class="hub-content off-screen">  
 <div class="hub-content-header">  
 <div class="container">  
 <a class="back-hub-link" href="/content/www/us/en/docs/programmable/683865/current/enabling-data-compression.html">3.7. Enabling Data Compression</a>  
 </div>  
 </div>  
<div class="hub-content-wrap">

[<a href="/content/www/us/en/docs/programmable/683865/current/enabling-compression-before-design-.html#dropdown-1-2-6-0" class="hub-toggle"><span class="hub-toggle-content">3.7.1. Enabling Compression Before Design Compilation</span></a>](/content/www/us/en/docs/programmable/683865/current/enabling-compression-before-design-.html#dropdown-1-2-6-0)

[<a href="/content/www/us/en/docs/programmable/683865/current/enabling-compression-after-design-c.html#dropdown-1-2-6-1" class="hub-toggle"><span class="hub-toggle-content">3.7.2. Enabling Compression After Design Compilation</span></a>](/content/www/us/en/docs/programmable/683865/current/enabling-compression-after-design-c.html#dropdown-1-2-6-1)

</div>  
</div>

[<a href="/content/www/us/en/docs/programmable/683865/current/generating-ekp-file-and-encrypt-configuration.html#dropdown-1-2-7-0" class="hub-toggle"><span class="hub-toggle-content">3.8.1. Generating .ekp File and Encrypt Configuration File</span></a>](/content/www/us/en/docs/programmable/683865/current/generating-ekp-file-and-encrypt-configuration.html#dropdown-1-2-7-0)

[<a href="/content/www/us/en/docs/programmable/683865/current/generating-jam-jbc-svf-file-from-ekp-file.html#dropdown-1-2-7-1" class="hub-toggle"><span class="hub-toggle-content">3.8.2. Generating .jam/.jbc/.svf file from .ekp file</span></a>](/content/www/us/en/docs/programmable/683865/current/generating-jam-jbc-svf-file-from-ekp-file.html#dropdown-1-2-7-1)

[<a href="/content/www/us/en/docs/programmable/683865/current/programming-ekp-file-and-encrypted-pof-file.html#dropdown-1-2-7-2" class="hub-toggle"><span class="hub-toggle-content">3.8.3. Programming .ekp File and Encrypted POF File</span></a>](/content/www/us/en/docs/programmable/683865/current/programming-ekp-file-and-encrypted-pof-file.html#dropdown-1-2-7-2)

[<a href="/content/www/us/en/docs/programmable/683865/current/encryption-in-internal-configuration.html#dropdown-1-2-7-3" class="hub-toggle"><span](/content/www/us/en/docs/programmable/683865/current/encryption-in-internal-configuration.html#dropdown-1-2-7-3)

class="hub-toggle-content">3.8.4. Encryption in Internal Configuration</span></a>

</div>  
</div>

<div id="dropdown-1-2-7-2" class="hub-content off-screen">

<div class="hub-content-header">  
<div class="container">  
<a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/programming-ekp-file-and-encrypted-pof-file.html">3.8.3. Programming .ekp File and Encrypted POF File</a>

</div>  
</div>  
<div class="hub-content-wrap">

<a  
href="/content/www/us/en/docs/programmable/683865/current/programming-ekp-file-and-encrypted-pof.html#dropdown-1-2-7-2-0" class="hub-toggle"><span class="hub-toggle-content">3.8.3.1. Programming .ekp File and Encrypted .pof Separately</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/integrate-the-ekp-into-pof-programming.html#dropdown-1-2-7-2-1" class="hub-toggle"><span class="hub-toggle-content">3.8.3.2. Integrate the .ekp into .pof Programming</span></a>

</div>  
</div>

```
<div id="dropdown-1-2-8" class="hub-content off-screen">
  <div class="hub-content-header">
    <div class="container">
      <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-
design-example.html">3.9. Intel® MAX® 10 JTAG Secure Design Example</a>
    </div>
  </div>
</div>
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/internal-and-
external-jtag-interfaces.html#dropdown-1-2-8-0" class="hub-toggle"><span
class="hub-toggle-content">3.9.1. Internal and External JTAG
Interfaces</span></a>
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/jtag-wysiwyg-
atom-for-jtag-control-block.html#dropdown-1-2-8-1" class="hub-toggle"><span
class="hub-toggle-content">3.9.2. JTAG WYSIWYG Atom for JTAG Control Block
Access Using Internal JTAG Interface</span></a>
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/executing-lock-
and-unlock-jtag-instructions.html#dropdown-1-2-8-2" class="hub-toggle"><span
class="hub-toggle-content">3.9.3. Executing LOCK and UNLOCK JTAG
Instructions</span></a>
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/verifying-the-
jtag-secure-mode.html#dropdown-1-2-8-3" class="hub-toggle"><span
class="hub-toggle-content">3.9.4. Verifying the JTAG Secure Mode</span></a>
```

```
</div>
</div>
```

```

<div id="dropdown-1-3" class="hub-content off-screen">
  <div class="hub-content-header">
    <div class="container">
      <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/fpga-
configuration-ip-core-implementation.html">4. Intel® MAX® 10 FPGA
Configuration IP Core Implementation Guides</a>
    </div>
  </div>
</div>
<div class="hub-content-wrap">

  <a
href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-
core-27700.html#dropdown-1-3-0" class="hub-toggle "><span class="hub-
toggle-content">4.1. Unique Chip ID Intel® FPGA IP Core</span></a>

  <a
href="/content/www/us/en/docs/programmable/683865/current/dual-
configuration-core-26199.html#dropdown-1-3-1" class="hub-toggle "><span
class="hub-toggle-content">4.2. Dual Configuration Intel® FPGA IP
Core</span></a>

</div>
</div>

```

```

<div id="dropdown-1-3-0" class="hub-content off-screen">
  <div class="hub-content-header">
    <div class="container">
      <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-
core-27700.html">4.1. Unique Chip ID Intel® FPGA IP Core</a>
    </div>
  </div>
</div>
<div class="hub-content-wrap">

  <a
href="/content/www/us/en/docs/programmable/683865/current/instantiating-the-
unique-chip-id-core.html#dropdown-1-3-0-0" class="hub-toggle"><span
class="hub-toggle-content">4.1.1. Instantiating the Unique Chip ID Intel® FPGA
IP Core</span></a>

  <a
href="/content/www/us/en/docs/programmable/683865/current/resetting-the-

```

unique-chip-id-core.html#dropdown-1-3-0-1" class="hub-toggle"><span class="hub-toggle-content">4.1.2. Resetting the Unique Chip ID Intel® FPGA IP Core</span></a>

</div>  
</div>

<div id="dropdown-1-3-1" class="hub-content off-screen">  
 <div class="hub-content-header">  
 <div class="container">  
 <a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-26199.html">4.2. Dual Configuration Intel® FPGA IP Core</a>  
 </div>  
 </div>  
</div>

<a  
href="/content/www/us/en/docs/programmable/683865/current/instantiating-the-dual-configuration-core.html#dropdown-1-3-1-0" class="hub-toggle"><span class="hub-toggle-content">4.2.1. Instantiating the Dual Configuration Intel® FPGA IP Core</span></a>

</div>  
</div>

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 <div class="container">  
 <a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/dual-

configuration-core-references.html">5. Dual Configuration Intel® FPGA IP Core References</a>

</div>

</div>

<div class="hub-content-wrap">

<a

href="/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-memory-mapped.html#dropdown-1-4-0" class="hub-toggle "><span class="hub-toggle-content">5.1. Dual Configuration Intel® FPGA IP Core Avalon® Memory-Mapped Address Map</span></a>

<a

href="/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-parameters.html#dropdown-1-4-1" class="hub-toggle "><span class="hub-toggle-content">5.2. Dual Configuration Intel® FPGA IP Core Parameters</span></a>

</div>

</div>

<div id="dropdown-1-5" class="hub-content off-screen">

<div class="hub-content-header">

<div class="container">

<a class="back-hub-link"

href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-core-references.html">6. Unique Chip ID Intel® FPGA IP Core References</a>

</div>

</div>

<div class="hub-content-wrap">

<a

href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-core-ports.html#dropdown-1-5-0" class="hub-toggle "><span class="hub-toggle-content">6.1. Unique Chip ID Intel® FPGA IP Core Ports</span></a>

</div>

</div>

```

    <div class="inpage-nav">
      <button class="btn-expand active" type="button" data-
target="#introduction" aria-expanded="true" aria-
controls="introduction"><span class="mobile-view-title">3.4.2. Executing IPS
File</span>
      </button>
    </div>
  </div>
  <div class="ude-documentation-details-desktop-navigation">
    <div class="filter-dropdown-search-wrapper component disabled" data-
component="wa_skip_track" data-component-id="1">
      <label for="documentation-details-search" class="filter-dropdown-
search-label">
        <input class="filter-dropdown-search" type="search"
id="documentation-details-search-id" aria-label="Search for filter" size="10"
placeholder="Search this document">
        <button class="btn-cancel-search" data-close="documentation-
details-search-id"><span class="sr-only">Close Filter Modal</span><span
class="fa-cancel-1"></span></button>
      </label>
    </div>
  <!--Dita code-->

```

```

    <div class="section">

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toggle="collapse" data-target="#chaptered-nav-expand-content-dropdown-1-0"
aria-expanded="false" aria-controls="chaptered-nav-expand-content-dropdown-
1-0"></button>
        <a
href="/content/www/us/en/docs/programmable/683865/current/fpga-
configuration-overview.html" class="">1. Intel® MAX® 10 FPGA Configuration
Overview</a>
      </div>

```

```

    <div class="section-content level-one collapse" id="chaptered-nav-
expand-content-dropdown-1-0" aria-expanded="false">

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```

    </div>
  </div>

```

```

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toggle="collapse" data-target="#chaptered-nav-expand-content-dropdown-1-1"

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```
aria-expanded="false" aria-controls="chaptered-nav-expand-content-dropdown-1-1"><span class="btn-filter-dropdown-indicator"></span></button>
    <a
href="/content/www/us/en/docs/programmable/683865/current/fpga-configuration-schemes-and-features.html" class="">2. Intel® MAX® 10 FPGA Configuration Schemes and Features</a>
</div>
```

```
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```

```
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        <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-schemes.html" class="">2.1. Configuration Schemes</a>
    </div>
```

```
    <div class="section-content level-one collapse" id="chaptered-nav-expand-content-dropdown-2-0" aria-expanded="false">
```

```
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            <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-configuration.html" class="">2.1.1. JTAG Configuration</a>
        </div>
```

```
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```

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            <ul class="links">
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class="btn-filter-dropdown-indicator"></span></button>
            <a
href="/content/www/us/en/docs/programmable/683865/current/internal-
configuration.html" class="">2.1.2. Internal Configuration</a>

```

```

        </div>
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href="/content/www/us/en/docs/programmable/683865/current/internal-
configuration-modes.html"> 2.1.2.1. Internal Configuration Modes</a></li>
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class="btn-filter-dropdown-indicator"></span></button>
            <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory.html" class="">2.1.2.2. Configuration Flash Memory</a>
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href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory-sectors.html"> 2.1.2.2.1. Configuration Flash Memory Sectors</a>
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```
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                    <li class="collapsed"><a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory-programming-time.html"> 2.1.2.2.2. Configuration Flash Memory
Programming Time</a>
                    </li>
                </ul>
```

```
</div>
```

```
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class="btn-filter-dropdown-indicator"></span></button>
                    <a
href="/content/www/us/en/docs/programmable/683865/current/in-system-
programming.html" class="">2.1.2.3. In-System Programming</a>
                </div>
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href="/content/www/us/en/docs/programmable/683865/current/isp-clamp.html">
2.1.2.3.1. ISP Clamp</a>
                        </li>
                    </ul>
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```
                    <ul class="links">
                        <li class="collapsed"><a
href="/content/www/us/en/docs/programmable/683865/current/real-time-
isp.html"> 2.1.2.3.2. Real-Time ISP</a>
                        </li>
                    </ul>
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```
                <ul class="links">
                    <li class="collapsed"><a
href="/content/www/us/en/docs/programmable/683865/current/isp-and-real-
time-isp-instructions.html"> 2.1.2.3.3. ISP and Real-Time ISP Instructions</a>
                    </li>
                </ul>
```

```
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```

```
                <ul class="links">
                    <li class="collapsed"><a
href="/content/www/us/en/docs/programmable/683865/current/initialization-
configuration-bits.html"> 2.1.2.4. Initialization Configuration Bits</a></li>
                </ul>
```

```
                <ul class="links">
                    <li class="collapsed"><a
href="/content/www/us/en/docs/programmable/683865/current/internal-
configuration-time.html"> 2.1.2.5. Internal Configuration Time</a></li>
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```

```
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</div>
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```
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2"><span class="btn-filter-dropdown-indicator"></span></button>
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href="/content/www/us/en/docs/programmable/683865/current/configuration-
features.html" class="">2.2. Configuration Features</a>
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class="btn-filter-dropdown-indicator"></span></button>
                <a
href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade.html" class="">2.2.1. Remote System Upgrade</a>
        </div>
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                <ul class="links">
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href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade-flow.html"> 2.2.1.1. Remote System Upgrade Flow</a></li>

                </ul>

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class="btn-filter-dropdown-indicator"></span></button>
                <a
href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade-circuitry.html" class="">2.2.1.2. Remote System Upgrade Circuitry</a>
        </div>
        <div class="section-content level-one collapse"
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```

```

                <ul class="links">
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href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade-circuitry-signals.html"> 2.2.1.2.1. Remote System Upgrade Circuitry
Signals</a>

                    </li>

                </ul>

```

```
<ul class="links">
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href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade-circuitry-input.html"> 2.2.1.2.2. Remote System Upgrade Circuitry Input
Control</a>
  </li>
</ul>
```

```
<ul class="links">
  <li class="collapsed"><a
href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade-input-register.html"> 2.2.1.2.3. Remote System Upgrade Input
Register</a>
  </li>
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```

```
<ul class="links">
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href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade-status-registers.html"> 2.2.1.2.4. Remote System Upgrade Status
Registers</a>
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</ul>
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href="/content/www/us/en/docs/programmable/683865/current/master-state-
machine.html"> 2.2.1.2.5. Master State Machine</a>
  </li>
</ul>
```

```
</div>
```

```
<ul class="links">
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`<li class="collapsed"><a href="/content/www/us/en/docs/programmable/683865/current/user-watchdog-timer.html"> 2.2.1.3. User Watchdog Timer</a></li>`

`</ul>`

`<ul class="links">  
<li class="collapsed"><a href="/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-79122.html"> 2.2.1.4. Dual Configuration Intel® FPGA IP Core</a></li>`

`</ul>`

`</div>`

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`<a href="/content/www/us/en/docs/programmable/683865/current/configuration-design-security.html" class="">2.2.2. Configuration Design Security</a>`

`</div>  
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`<a href="/content/www/us/en/docs/programmable/683865/current/aes-encryption-protection.html" class="">2.2.2.1. AES Encryption Protection</a>`

`</div>  
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href="/content/www/us/en/docs/programmable/683865/current/encryption-and-
decryption.html"> 2.2.2.1.1. Encryption and Decryption</a>
                    </li>

                </ul>
```

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</div>
```

```
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href="/content/www/us/en/docs/programmable/683865/current/unique-chip-
id.html" class="">2.2.2.2. Unique Chip ID</a>
                </div>
                <div class="section-content level-one collapse"
id="chaptered-nav-expand-content-dropdown-4-1" aria-expanded="false">
```

```
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href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-
core-80250.html"> 2.2.2.2.1. Unique Chip ID Intel® FPGA IP Core</a>
                        </li>

                    </ul>
```

```
</div>
```

```
                <div class="section-head">
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content-dropdown-4-2" aria-expanded="false" aria-controls="chaptered-nav-
expand-content-dropdown-4"><span
class="btn-filter-dropdown-indicator"></span></button>
```



```
                <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-
mode.html" class="">2.2.2.3. JTAG Secure Mode</a>
            </div>
            <div class="section-content level-one collapse"
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```

```
                <ul class="links">
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href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-
mode-instructions.html"> 2.2.2.3.1. JTAG Secure Mode Instructions</a>
                    </li>
                </ul>
```

```
            </div>
```

```
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                    <li class="collapsed"><a
href="/content/www/us/en/docs/programmable/683865/current/verify-
protect.html"> 2.2.2.4. Verify Protect</a></li>
                </ul>
```

```
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href="/content/www/us/en/docs/programmable/683865/current/jtag-instruction-
availability.html"> 2.2.2.5. JTAG Instruction Availability</a></li>
                </ul>
```

```
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expand-content-dropdown-4"><span
class="btn-filter-dropdown-indicator"></span></button>
                <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory-permissions.html" class="">2.2.2.6. Configuration Flash Memory
Permissions</a>
```

```
        </div>
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```
            <ul class="links">
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href="/content/www/us/en/docs/programmable/683865/current/flash-region-
access-control-and-immutability.html"> 2.2.2.6.1. Flash Region Access Control
and Immutability</a>
                </li>
            </ul>
```

```
        </div>
```

```
    </div>
```

```
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expand-content-dropdown-3"><span
class="btn-filter-dropdown-indicator"></span></button>
            <a
href="/content/www/us/en/docs/programmable/683865/current/seu-mitigation-
and-configuration-error.html" class="">2.2.3. SEU Mitigation and Configuration
Error Detection</a>
        </div>
        <div class="section-content level-one collapse"
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```

```
            <ul class="links">
                <li class="collapsed"><a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
error-detection.html"> 2.2.3.1. Configuration Error Detection</a></li>
            </ul>
```

```
        <div class="section-head">
```

```

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class="btn-filter-dropdown-indicator"></span></button>
                <a
href="/content/www/us/en/docs/programmable/683865/current/user-mode-error-
detection.html" class="">2.2.3.2. User Mode Error Detection</a>
            </div>
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```

```

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href="/content/www/us/en/docs/programmable/683865/current/error-detection-
block.html"> 2.2.3.2.1. Error Detection Block</a>
                    </li>
                </ul>

```

```

                <ul class="links">
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href="/content/www/us/en/docs/programmable/683865/current/change-edreg-
jtag-instruction.html"> 2.2.3.2.2. CHANGE_EDREG JTAG Instruction</a>
                    </li>
                </ul>

```

```

            </div>

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```

            <div class="section-head">
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expand-content-dropdown-4"><span
class="btn-filter-dropdown-indicator"></span></button>
                <a
href="/content/www/us/en/docs/programmable/683865/current/error-detection-
timing.html" class="">2.2.3.3. Error Detection Timing</a>
            </div>
            <div class="section-content level-one collapse"
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```

- [2.2.3.3.1. Error Detection Frequency](/content/www/us/en/docs/programmable/683865/current/error-detection-frequency.html)

- [2.2.3.3.2. Cyclic Redundancy Check Calculation Timing](/content/www/us/en/docs/programmable/683865/current/cyclic-redundancy-check-calculation-timing.html)

</div>

- [2.2.3.4. Recovering from CRC Errors](/content/www/us/en/docs/programmable/683865/current/recovering-from-crc-errors.html)

</div>

- [2.2.4. Configuration Data Compression](/content/www/us/en/docs/programmable/683865/current/configuration-data-compression.html)

</div>

```
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aria-expanded="false" aria-controls="chaptered-nav-expand-content-dropdown-
2"><span class="btn-filter-dropdown-indicator"></span></button>
  <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
details.html" class="">2.3. Configuration Details</a>
</div>
<div class="section-content level-one collapse" id="chaptered-
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```

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expand-content-dropdown-3"><span
class="btn-filter-dropdown-indicator"></span></button>
    <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
sequence.html" class="">2.3.1. Configuration Sequence</a>
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class="">2.3.1.1. Power-up</a>
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href="/content/www/us/en/docs/programmable/683865/current/por-monitored-
voltage-rails-for-single.html"> 2.3.1.1.1. POR Monitored Voltage Rails for Single-
supply and Dual-supply Intel® MAX® 10 Devices</a>
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href="/content/www/us/en/docs/programmable/683865/current/monitored-
power-supplies-ramp-time-requirement.html"> 2.3.1.1.2. Monitored Power
Supplies Ramp Time Requirement for Intel® MAX® 10 Devices</a>
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                </ul>

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                </ul>

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href="/content/www/us/en/docs/programmable/683865/current/configuration-
error-handling.html"> 2.3.1.3. Configuration Error Handling</a></li>
                </ul>

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href="/content/www/us/en/docs/programmable/683865/current/initialization.html
"> 2.3.1.4. Initialization</a></li>
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href="/content/www/us/en/docs/programmable/683865/current/user-
mode.html"> 2.3.1.5. User Mode</a></li>

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<a href="/content/www/us/en/docs/programmable/683865/current/fpga-configuration-design-guidelines.html" class="">3. Intel® MAX® 10 FPGA Configuration Design Guidelines</a>

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Configuration Pin</a>
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href="/content/www/us/en/docs/programmable/683865/current/jtag-pin-sharing-
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href="/content/www/us/en/docs/programmable/683865/current/enabling-dual-
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href="/content/www/us/en/docs/programmable/683865/current/configuring-
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devices-using-jtag-configuration.html" class="">>3.2. Configuring Intel® MAX®  
10 Devices using JTAG Configuration</a>

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href="/content/www/us/en/docs/programmable/683865/current/auto-generating-  
configuration-files.html"> 3.2.1. Auto-Generating Configuration Files for Third-  
Party Programming Tools</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/generating-third-  
party-programming-files%20generating-third-party-programming-files  
%20generating-third-party-programming-files.html"> Generating Third-Party  
Programming Files using Intel® Quartus® Prime Programmer</a></li>

</ul>

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href="/content/www/us/en/docs/programmable/683865/current/jtag-  
configuration-setup.html"> 3.2.3. JTAG Configuration Setup</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/icb-settings-in-  
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href="/content/www/us/en/docs/programmable/683865/current/configuring-
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using Internal Configuration</a>
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href="/content/www/us/en/docs/programmable/683865/current/selecting-
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[3.3.2.2. Generating .pof using Convert Programming Files](/content/www/us/en/docs/programmable/683865/current/generating-pof-using-convert-programming.html)

[Generating Third-Party Programming Files using Intel® Quartus® Prime Programmer](/content/www/us/en/docs/programmable/683865/current/generating-third-party-programming-files%20generating-third-party-programming-files%20generating-third-party-programming-files-01.html)

[3.3.3. Programming .pof into Internal Flash](/content/www/us/en/docs/programmable/683865/current/programming-pof-into-internal-flash.html)

[3.4. Implementing ISP Clamp in Intel® Quartus® Prime Software](/content/www/us/en/docs/programmable/683865/current/implementing-isp-clamp-in-software.html)

3.4. Implementing ISP Clamp in Intel® Quartus® Prime Software

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href="/content/www/us/en/docs/programmable/683865/current/creating-ips-
file.html"> 3.4.1. Creating IPS File</a></li>
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href="/content/www/us/en/docs/programmable/683865/current/executing-ips-
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href="/content/www/us/en/docs/programmable/683865/current/accessing-
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through User Logic</a></li>
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  <a
href="/content/www/us/en/docs/programmable/683865/current/error-
detection.html" class="">3.6. Error Detection</a>
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href="/content/www/us/en/docs/programmable/683865/current/verifying-error-
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detection-functionality.html"> 3.6.1. Verifying Error Detection  
Functionality</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/enabling-error-  
detection.html"> 3.6.2. Enabling Error Detection</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/accessing-error-  
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User Logic</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/enabling-  
compression-before-design-.html"> 3.7.1. Enabling Compression Before Design  
Compilation</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/enabling-
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Compilation</a></li>
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href="/content/www/us/en/docs/programmable/683865/current/aes-
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href="/content/www/us/en/docs/programmable/683865/current/generating-ekp-
file-and-encrypt-configuration.html"> 3.8.1. Generating .ekp File and Encrypt
Configuration File</a></li>
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href="/content/www/us/en/docs/programmable/683865/current/generating-jam-
jbc-svf-file-from-ekp-file.html"> 3.8.2. Generating .jam/.jbc/.svf file from .ekp
file</a></li>
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href="/content/www/us/en/docs/programmable/683865/current/programming-
ekp-file-and-encrypted-pof-file.html" class="">3.8.3. Programming .ekp File and
Encrypted POF File</a>

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ekp-file-and-encrypted-pof.html"> 3.8.3.1. Programming .ekp File and
Encrypted .pof Separately</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/integrate-the-
ekp-into-pof-programming.html"> 3.8.3.2. Integrate the .ekp into .pof
Programming</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-
design-example.html" class="">3.9. Intel® MAX® 10 JTAG Secure Design
Example</a>
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href="/content/www/us/en/docs/programmable/683865/current/internal-and-
external-jtag-interfaces.html"> 3.9.1. Internal and External JTAG
Interfaces</a></li>
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href="/content/www/us/en/docs/programmable/683865/current/jtag-wysiwyg-
atom-for-jtag-control-block.html"> 3.9.2. JTAG WYSIWYG Atom for JTAG Control
Block Access Using Internal JTAG Interface</a></li>
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href="/content/www/us/en/docs/programmable/683865/current/executing-lock-
and-unlock-jtag-instructions.html"> 3.9.3. Executing LOCK and UNLOCK JTAG
Instructions</a></li>
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href="/content/www/us/en/docs/programmable/683865/current/verifying-the-
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Configuration IP Core Implementation Guides</a>
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href="/content/www/us/en/docs/programmable/683865/current/instantiating-the-
unique-chip-id-core.html"> 4.1.1. Instantiating the Unique Chip ID Intel® FPGA IP
Core</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/resetting-the-  
unique-chip-id-core.html"> 4.1.2. Resetting the Unique Chip ID Intel® FPGA IP  
Core</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/dual-  
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href="/content/www/us/en/docs/programmable/683865/current/instantiating-the-  
dual-configuration-core.html"> 4.2.1. Instantiating the Dual Configuration Intel®  
FPGA IP Core</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/dual-
configuration-core-references.html" class="">5. Dual Configuration Intel® FPGA
IP Core References</a>
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href="/content/www/us/en/docs/programmable/683865/current/dual-
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IP Core Avalon® Memory-Mapped Address Map</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/dual-
configuration-core-parameters.html">5.2. Dual Configuration Intel® FPGA IP
Core Parameters</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-
core-references.html" class="">6. Unique Chip ID Intel® FPGA IP Core
References</a>
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href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-core-ports.html">6.1. Unique Chip ID Intel® FPGA IP Core Ports</a></li>

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1-6"></button>
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href="/content/www/us/en/docs/programmable/683865/current/document-
revision-history-for-the-fpga.html" class="">7. Document Revision History for
the Intel® MAX® 10 FPGA Configuration User Guide</a>
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```

```
<div id="internalUser" class="col-md-12 col-xs-12" style="display: none;">
  <div class="col-lg-10 col-xs-12">
```

```
    <p><span class="disclaimer">Visible to Intel only — </span>
```

```
      <span class="label">GUID:</span>
      <span class="info">bqj1472107367779</span></p>
```

```
    <p><span class="label"></span> <span
class="info">Ixiasoft</span>
    </p>
```

```
</div>
<div class="col-lg-2 col-xs-12">
  <p class="cta-item">
```

```
        <a class="btn btn-tertiary"
href="/content/www/us/en/secure/design/internal/content-details.html?
DocID="><span>View Details</span></a>
    </p>
</div>
</div>
```

```

</div>

<div class="ude-documentation-details-content">
    <h2 class="h3 desktop-only">3.4.2. Executing IPS File</h2>
    <div id="bqj1472107367779">
        <div class="body taskbody" id="d25475e136">
            <div class="section context"
id="bqj1472107367779__context_N10011_N1000E_N10001">
                <p class="p">To execute ISP Clamp, perform the following steps:</p>
            </div>
            <ol class="ol steps">
                <li class="li step stepexpand"
id="bqj1472107367779__step_N10023_N1001E_N1000E_N10001"> <span
class="ph cmd" id="bqj1472107367779__d25475e148">In the Quartus Prime
<span class="keyword wintitle"
id="bqj1472107367779__d25475e150">Programmer</span>, select the <span
class="ph filepath" id="bqj1472107367779__d25475e153">.pof</span> you
want to program to the device.</span> </li>
                <li class="li step stepexpand"
id="bqj1472107367779__step_N10034_N1001E_N1000E_N10001"> <span
class="ph cmd" id="bqj1472107367779__d25475e160">Select the <span
class="ph filepath" id="bqj1472107367779__d25475e162">.pof</span>, right
click and select <span class="ph uicontrol"
id="bqj1472107367779__d25475e165">Add IPS File</span> and turn-on <span
class="ph uicontrol" id="bqj1472107367779__d25475e168">ISP
CLAMP</span>.</span>
                    <div class="itemgroup info" id="bqj1472107367779__d25475e172">
                        <div class="note note"
id="bqj1472107367779__note_N10049_N10046_N10033_N1001E_N1000E_N100
01">
                            <span class="notetitle">Note:</span> You can change the start-up delay of
the I/O Clamp after configuration. To do this, select <span class="ph
menucascade" id="bqj1472107367779__d25475e176"><span class="ph
uicontrol" id="bqj1472107367779__d25475e178">Tools</span> &gt; <span
class="ph uicontrol"
id="bqj1472107367779__d25475e181">Options</span></span>, turn-on the
<span class="ph uicontrol" id="bqj1472107367779__d25475e185">Overwrite
MAX10 configuration start up delay when using IO Clamp in Programmer</span>
option, and change the delay value accordingly.
                        </div>
                    </div> </li>
                <li class="li step stepexpand"
id="bqj1472107367779__step_N10062_N1001E_N1000E_N10001"> <span
class="ph cmd" id="bqj1472107367779__d25475e193">Select the <span
class="ph filepath" id="bqj1472107367779__d25475e195">.pof</span> in
the<span class="ph uicontrol" id="bqj1472107367779__d25475e198">
Program/Configure</span> column.</span>
```

```

    <div class="itemgroup info" id="bqj1472107367779__d25475e202">
      <div class="note note"
id="bqj1472107367779__note_N10072_N1006F_N10060_N1001E_N1000E_N100
01">
        <span class="notetitle">Note:</span> For third party programming, you
can generate the <span class="ph filepath"
id="bqj1472107367779__d25475e206">.jam</span> or <span class="ph
filepath" id="bqj1472107367779__d25475e209">.jbc</span> file from the
<span class="ph filepath" id="bqj1472107367779__d25475e212">.pof</span>
file with <span class="ph filepath"
id="bqj1472107367779__d25475e215">.ips</span> file.
      </div>
    </div> </li>
    <li class="li step stepexpand"
id="bqj1472107367779__step_N1008C_N1001E_N1000E_N10001"> <span
class="ph cmd" id="bqj1472107367779__d25475e223">After all settings are
set, click <span class="ph uicontrol"
id="bqj1472107367779__d25475e225">Start</span> to start programming.
</span> </li>
  </ol>
</div>
</div>
  <div class="modal fade modal-image" id="image-expand-modal"
tabindex="-1" role="dialog">
    <div class="modal-dialog">
      <div class="modal-content">
        <div class="modal-header">
          <button type="button" class="close icon" data-dismiss="modal"
aria-label="Close">
            <span></span></button>
        </div>
        <div class="modal-body"></div>
      </div>
    </div>
  </div>
</div>
<div class="ude-documentation-details-mobile-content-navigation">
  <a class="btn btn-secondary" href="#">
    <span>Level Two Title</span>
  </a>
</div>
<div class="ude-documentation-details-desktop-content-navigation">
  <a class="btn btn-tertiary previous"
href="/content/www/us/en/docs/programmable/683865/current/creating-ips-
file.html"><span class="indicator"></span><span class="copy"> 3.4.1.
Creating IPS File</span></a>
  <a class="btn btn-tertiary next"
href="/content/www/us/en/docs/programmable/683865/current/accessing-
remote-system-upgrade-through.html"><span
class="indicator"></span><span class="copy">3.5. Accessing Remote System
Upgrade through User Logic</span></a>
</div>
</div>

```

```
</div>
<div class="feedbackTool container">
```

```
<script type="text/javascript">
  var intelFeedback = intelFeedback || {};
  intelFeedback.gtvLabels = {
    remainingText: 'Characters remaining',
    remainingTextOne: 'Character remaining',
    feedbackMessage: 'Feedback Sent'
  };
</script>
```

```
<section id="feedbackToolContainer" class="feedbackTool component" data-
component="coveo-feedback-modal" data-component-id="1" aria-
labelledby="fbc-title">
  <div class="fbc-header noselect" id="fbc-header" data-
wap_ref="close:feedback-modal" tabindex="0">
    <!-- icon -->
    <input type="hidden" id="errMissingResponse" value="Please answer at
least one question">
    <h2 class="fbc-title" id="fbc-title">
      <button aria-controls="fbc-body" aria-expanded="false" class="fbc-title-
btn" id="fbc-title-btn" type="button">
        
        <span class="fbc-title-label" id="fbc-title-label"> Give
Feedback</span>
      </button>
    </h2>

    <!-- close -->
    <button class="close fa-cancel-thin" aria-label="close feedback"
type="button" tabindex="0">
      <svg aria-hidden="true" class="close-icon" height="11" width="11"
viewBox="0 0 12 12">
        <line stroke="currentColor" stroke-width="1" x1="0" y1="0" x2="12"
y2="12"></line>
        <line stroke="currentColor" stroke-width="1" x1="0" y1="12"
x2="12" y2="0"></line>
      </svg>
    </button>
  </div>

  <!-- body -->
  <div class="fbc-body">
```



```

<!-- question -->
<div aria-labelledby="feedback-question" role="radiogroup" aria-
describedby="yesno-error" aria-required="true" id="fbc-question-div">
  <p class="fbc-question" id="feedback-question">
    Did you find the information on this page useful?
  </p>

  <!-- checkboxes -->
  <div class="fbc-checkboxes">
    <!-- yes -->

    <div id="yesno-yes-block" class="fbc-checkboxes-yes">
      <input id="yesno-yes" type="radio" name="yesno" value="1"
autocomplete="off">
      <label id="yesno-yes-label" for="yesno-yes" data-wap_ref="results-
delivered:yes">
        <span style="vertical-align: middle;">
          Yes
        </span>
      </label>
    </div>

    <!-- no -->
    <div id="yesno-no-block" class="fbc-checkboxes-no">

      <input id="yesno-no" type="radio" name="yesno" value="0"
autocomplete="off">
      <label id="yesno-no-label" for="yesno-no" data-wap_ref="results-
delivered:no">

        <span style="vertical-align: middle;">
          No
        </span>
      </label>
    </div>

    <div class="fbc_yesno_error"><span id="yesno-error" aria-
live="polite"></span></div>
  </div>

  <!-- comments -->
  <div class="fbc-comments">
    <!-- textarea -->
    <label class="fbc_comments_label" for="yesno-comment">
      <span>
        How could we improve the page?
      </span>
    </label>
    <textarea id="yesno-comment" name="yesno-comment" rows="5"
maxlength="500" autocomplete="off" aria-describedby="yesno-comment-
count"></textarea>

    <!-- character count -->

```

```

        <p id="yesno-comment-count" class="fbc-character-count">Characters
remaining: <span id="yesno-remaining-characters">500</span></p>
    </div>

```

```

        <input type="hidden" id="errServerError" value="There was an error.
Please try again.">

```

```

        <!-- submit -->
        <div class="fbc-submit">
            <button type="button" id="fbc-submit" data-
wap="{&quot;message&quot;:&quot;message_not_added&quot;}" data-
wap_ref="feedback_modal_send">

```

```

                Send Feedback

```

```

            </button>

```

```

        </div>

```

```

        <div id="feedbackModal" class="feedbackmodal">

```

```

            <div class="feedbackmodal-content">

```

```

                <div class="fbc-feedbackheader">

```

```

                    <p>Feedback Message</p>

```

```

                </div>

```

```

                <div class="feedbackmessage">

```

```

                    <p aria-live="polite" id="feedbacksentmessage"></p>

```

```

                </div>

```

```

                <div class="fbc-submitok">

```

```

                    <button type="button" id="fbc-submitok" aria-
hidden="true">Ok</button>

```

```

                </div>

```

```

            </div>

```

```

        </div>

```

```

    </div>

```

```

</section>

```

```

</div>

```

```

    </div>

```

```

</div>

```

```

<script src="https://cdnjs.cloudflare.com/ajax/libs/mathjax/2.7.1/MathJax.js?
config=TeX-MML-AM_CHTML" id=""></script>

```

```

<script

```

```

src="/etc.clientlibs/settings/wcm/clientlibs/ckeditor/resources/prism.js"></
script>

```

```

<div class="disclaimer parbase">

```

<div class="translationDisclaimer parbase">

</div>

</div>

<div class="helpModule getHelpComponent parbase">

```

    <div id="getHelpComponent-1" class="component get-help-module"
data-component="getHelpComponent" data-component-id="1">
    <aside id="gethelp" class="right fixed-bottom hidden" role="dialog"
data-help-config-url="/libs/intel/get-help.us_en.default" style="display: none;">
    <div class="wrapper">

        <div class="navbar" aria-label="Get Help Dialog Header">
            <a name="gethelp_button" id="gethelp_button"></a>

            <button class="container-fluid navbar-toggler btn btn-primary
collapsed d-flex justify-content-between" type="button" data-toggle="collapse"
data-target="#gethelp-accordion" aria-controls="gethelp-accordion" aria-
expanded="false" aria-label="Get Help Dialog" data-btn-ref="get-help" data-
wap="" data-wap_ref="get-help-collapsed">
                <span class="navbar-toggler-icon-gethelp chat-icon icon align-icons
fa-user-headset" aria-hidden="true" title=""></span>
                <span id="gethelp-heading" class="navbar-toggler-title"
aria-hidden="true">Get Help</span>

                <span class="navbar-toggler-icon-close icon align-icons fa-
cancel-thin" aria-hidden="true" title="Close Get Help Dialog"></span>
            </button>
        </div>

        <ul id="gethelp-accordion" class="accordion panel-group
collapse" data-allow-toggle="" aria-label="Accordion">
        </ul>

    </div>

    </aside>
</div>
<link rel="stylesheet"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/get-
help.min.css" type="text/css"><script
src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/get-
help.min.js" defer=""></script>

```

</div>

</main>

<footer class="global blade solid brand-lighter-gray theme-light-2 component"  
data-component-id="1" data-component="footer" role="contentinfo" data-  
wap\_type="wa\_skip\_track" id="skip-footer">

<div class="container">

<div class="content-footer">

<div class="content">

<ul class="footer-links">

<li>

<a

href="/content/www/us/en/company-overview/company-  
overview.html">Company Overview</a>

</li>

```

        <li>
            <a href="/content/www/us/en/support/contact-
intel.html">Contact Intel</a>
        </li>

        <li>
            <a
href="/content/www/us/en/newsroom/home.html">Newsroom</a>
        </li>

        <li>
            <a href="https://www.intc.com/">Investors</a>
        </li>

        <li>
            <a href="/content/www/us/en/jobs/jobs-at-
intel.html">Careers</a>
        </li>

        <li>
            <a
href="/content/www/us/en/corporate-responsibility/corporate-
responsibility.html">Corporate Responsibility</a>
        </li>

        <li>
            <a href="/content/www/us/en/diversity/diversity-at-
intel.html">Diversity & Inclusion</a>
        </li>

        <li>
            <a
href="/content/www/us/en/company-overview/public-policy.html">Public
Policy</a>
        </li>
    </ul>

```

```

<ul class="footer-links social">

    <li>
        <a href="https://www.facebook.com/Intel" target=""
aria-label="Intel on Facebook" data-
wap="{&quot;linktype&quot;:&quot;footersocial&quot;}">
            <i aria-hidden="true" class="fa-facebook"></i>
        </a>
    </li>

```

- [<i aria-hidden="true" class="fa-twitter"></i>](https://twitter.com/intel)
- [<i aria-hidden="true" class="fa-linkedin"></i>](https://www.linkedin.com/company/intel-corporation)
- [<i aria-hidden="true" class="fa-youtube"></i>](https://www.youtube.com/user/channelintel?sub_confirmation=1)
- [<i aria-hidden="true" class="fa-instagram"></i>](https://www.instagram.com/intel/)

</ul>

<ul class="footer-links secondary-links" id="footerSecondaryLinks">

<li>

<small>© Intel Corporation</small>

</li>

<li>

use.html">  
    <a href="/content/www/us/en/legal/terms-of-  
        <small>Terms of Use</small>  
    </a>

</li>

<li>

    <a  
href="/content/www/us/en/legal/trademarks.html">  
        <small>\*Trademarks</small>  
    </a>

</li>

<li>

    <a href="/content/www/us/en/privacy/intel-  
cookie-notice.html" data-cookie-notice="true">  
        <small>Cookies</small>  
    </a>

</li>

<li>



privacy-notice.html">  
    <a href="/content/www/us/en/privacy/intel-  
        <small>Privacy</small>  
    </a>

</li>

<li>

responsibility/statement-combating-modern-slavery.html">  
    <a href="/content/www/us/en/corporate-  
        <small>Supply Chain Transparency  
    </small>  
    </a>

</li>

<li>

href="/content/www/us/en/siteindex.html">  
    <a  
        <small>Site Map</small>  
    </a>

</li>

</ul>

```
<div class="footer-disclaimer">
  <p>Intel technologies may require enabled hardware, software
or service activation. // No product or component can be absolutely secure. //
Your costs and results may vary. // Performance varies by use, configuration and
other factors. // See our complete legal <u><a
href="https://edc.intel.com/content/www/us/en/products/performance/
benchmarks/overview/#GUID-26B0C71C-25E9-477D-9007-
52FCA56EE18C">Notices and Disclaimers</a></u>. // Intel is committed to
respecting human rights and avoiding complicity in human rights abuses. See
Intel's <a href="https://www.intel.com/content/www/us/en/policy/policy-human-
rights.html"><u>Global Human Rights Principles</u></a>. Intel's products and
software are intended only to be used in applications that do not cause or
contribute to a violation of an internationally recognized human right.</p>
```

```
</div>
```

```
</div>
<div class="logo-container">
  <a href="/content/www/us/en/homepage.html" class="footer-logo-
rebrand" aria-label="Intel Footer Logo" title="Intel Footer Logo">
    
  </a>
</div>
</div>
</div>
</footer>
```

```
<textarea id="defers" title="" style="display:none;">
  &lt;script&gt;var isTargetEnabled =false;&lt;/script&gt;
```

```
<script type="text/javascript">
  var cq_tms = {
    wa_emtcontenttype:
"emtcontenttype:designanddevelopmentreference/developerguide/developeruse
rguide",
    wa_primarycontenttagging:
"primarycontenttagging:intelfpgas/intelprogrammabledevices,primarycontenttag
ging:intelfpgas/intelprogrammabledevices/intelmax/
intelmax10fpgas,primarycontenttagging:intelfpgas/
intelfpgaintellectualproperty/basicfunctions",
    wa_curated: "curated:donotuseinexternalfilters/recommended",
    wa_emtsubject: "emtsubject:design/fpgadesign/remotesystemupgrades",

    wa_industry_type: "",
    wa_partner_prog: "",
    wa_subject: "",
    wa_biz_size: "",
    wa_emt_org: "",
    wa_emt_intel: "",
```

```

    wa_partner_type: "",
    wa_programidentifier: "",
    wa_location: "us",
    wa_language: "en",
    wa_english_title: "3.4.2. Executing IPS File",
    wa_content_type: "",
    wa_intel_platform: "",
    wa_applications: "",
    wa_local: "en_US",
    wa_intel_technology: "",
    wa_system_type: "",
    wa_product_name: "",
    wa_audience:
"emtaudience:business/btssbusinessstechnologysolutionspecialist/developer/
fpgaengineer",
    wa_life_cycle: "",
    wa_cq_url:
"/content/www/us/en/docs/programmable/683865/current/executing-ips-
file.html",
    wa_page_type_micro: "udeDocumentationDetail",
    wa_env: "prd",
    wa_cq_pub_env: "publish",
    wa_transl_status: "",
    wa_product_id: "98847,216704,216704,215648",
    wa_software: "",
    wa_reference_design: "",
    wa_codename: "",
    wa_created_date: "1639788877021",
    wa_modified_date: "1639788877029",
    wa_off_time: "1924992000000",
    wa_ownedby: "",
    wa_managedby: "",
    wa_idz_nid : "",
    wa_event_type: "",
    wa_idz_custom_tags: "",
    wa_programming_language: "",
    wa_skill_level: "",
    wa_solution: "",
    wa_product_formFactor: "",
    wa_operating_system: "",
    wa_marketing_products: "",
    wa_ssg_third_party_prod_sys_sol: "",
    wa_upeNamespace: "",
    wa_doc_id:"683865",
    wa_doc_version:"current",
    wa_doc_publishdate:"5/26/2022",

    wa_secondary_content_type:
"emtcontenttype:designanddevelopmentreference/developerguide/developeruse
rguide"

```

```
};
```

cq\_tms.wa\_tms\_sync\_load = "deferred";

</script>

<script type="text/javascript">

var chatContextObj = {};

chatContextObj["locale"] = 'en-US';

chatContextObj["app"] = 'PSG';

chatContextObj["supportProductMap"] = 'NA';

</script>

<script src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/detect-idsa.min.js" defer></script>

<script type="text/javascript"  
src="/content/dam/www/global/wap/tms.sync.js" async></script>

<link rel="stylesheet"  
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/commons-page.min.css" type="text/css"><script  
src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/commons-page.min.js" defer></script>

<script>!function(){var e=setInterval(function(){"undefined"!=typeof \$CQ&&(\$CQ(function(){CQ\_Analytics.SegmentMgr.loadSegments("/etc/segmentation"),CQ\_Analytics.ClientContextUtils.init("/etc/clientcontext/

```
intel",window.location.pathname.substr(0,window.location.pathname.indexOf("."))
)),clearInterval(e))},100)}();</script>
```

```
<link rel="preload" as="style"
href="/etc.clientlibs/settings/wcm/designs/intel/us/en/css/resources/css/
intel.rwd.override.css"/>
<link rel="stylesheet" type="text/css"
href="/etc.clientlibs/settings/wcm/designs/intel/us/en/css/resources/css/
intel.rwd.override.css"/>
```

</textarea>

```
<script type="text/javascript"
src="/4Tl6oV/d0a/Oc_/BmKDO5_/5J5hcNmz/Wh86Cj0C/BRt3/bhA9GSM"></script
>
```

```
<div
id="onSiteonRTag"></div><script>clearTimeout(onsTimerB);cn=onsCookie;win
dow.onsCookieExp=30;onsIconURL='R0IGODlhRgBGAKIEAPb6/fv9/v///wBxxf///
wAAAAAAAAAAAAACH/C05FVFNDQVBFMi4wAwEAAAAh/wtYTVAgRGF0YVhNUDw/
eHBhY2tldCBiZWdpbj0i77u/
liBpZD0iVzVNME1wQ2VoaUh6cmVTek5UY3prYzlkIj8+IDx4OnhtcG1ldGEgeG1sbn
M6eD0iYWVrYmU6bnM6bWV0YS8iIHg6eG1wdG9kFkb2JlIFhNUCBDb3JlIDUuMy1j
MDExIDY2LjE0NTY2MSwgMjAxMi8wMi8wNi0xND01NjoyNyAgICAgICAglj4gPHJkZjp
SREYgeG1sbnM6cmRmPSJodHRwOi8vd3d3LnczLm9yZy8xOTk5LzAyLzlyLXJkZi1ze
W50YXgtbnMjIj4gPHJkZjpEZXNjcmlwdGlvbiByZGY6YWJvdXQ9IiIgeG1sbnM6eG1wP
SjodHRwOi8vb3N0YXVzY29tL3h5cGU6YXZ5LW91LWVudC8xLjAvbiB4bWxuczp4bXBNTT0iaHR0cD
ovL25zLmFkb2JlLmNvbS94YXAvMS4wL21ldGEgeG1sbnM6c3RSZWY9Imh0dHA6Ly
9ucy5hZG9iZS5jb20veGFwLzEuMC9zVHlwZS9SZXNvdXJjZVJlZiMiIHhtcDpDcmVhd
G9yVG9vbD0iQWRvYmUgUGhvdG9zaG9wIEN0aW40V2luZG93cykiIHhtcE1NOkluc3
RhbmNlSUQ9InhtcC5paWQ6ODIyRUQwNzYxMkY0MTFFNjkyRDE4M0RGODA2MjYw
RUUuIiIHhtcE1NOkRvY3VtZW50SUQ9InhtcC5kaWQ6ODIyRUQwNzYxMkY0MTFFNjky
RDE4M0RGODA2MjYwRUUuIiA8eG1wTU06RGVyaXZlZEZyb20gc3RSZWY6aW5zdG
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xsZhsNDAzz2cm8RYhFNW2IUS3RQJADs=';onsKey=0;function  
ONS\_sCookie(n,v,e,d){var cdate=new Date();if(e)cdate.setTime(cdate.getTime()  
+(e\*24\*60\*60\*1000));dD.cookie=n+'='+escape(v)+  
(e?';expires='+cdate.toGMTString():')+ (d?';domain='+d:'')  
+';path=/;secure;samesite=none';}function ONS\_showIcon(n){var  
chat=document.getElementsByClassName('embeddedServiceHelpButton');if(cha

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t.length==0)chat=document.getElementsByClassName('avaamo__chat__widget'
);var position=(chat.length==0?'right':'left');var
onObj=ONS_getObj('onSiteonRTag');onObj.innerHTML='<A title="" +onsPmsg+"
name="onsitelink" href="" +onsPATH+ONS_getCoreScript()+'?
s=22&geo='+onsKey+ONS_getPBVS('&')+"" target="onsitesurvey" style="text-
decoration:none" onclick="ONS_collectDataLake(); return
ONS_getSurvey();"><FIGURE id="survey-icon" style="position:fixed;z-
index:998;bottom:2em;'+position+':1em;cursor:pointer;background-
color:#0081d6;border-radius:2px;box-shadow:2px 2px 0px
rgba(0,0,0,0.15);"><IMG alt="Survey icon"
src="data:image/gif;base64,'+onsIconURI+'"" border="0" width="70"
height="70"/></FIGURE></A>';onObj.style.cssText="";onObj.style.display='bloc
k';}window.ONS_setStage=function(n,a){var
onObj=dD.createElement('script');onObj.src=onsPATH+'j_stagescript.asp?
s='+n+'&r='+encodeURIComponent(onsCURL)
+'&a='+a+ONS_getPBVS('&');dD.body.appendChild(onObj);};window.ONS_getOn
ResearchWebID=function(){var sid=onsUSID||ONS_gCookie(cn+'SID');var
m=sid.indexOf('M');if(sid==''||m==-1||m+14>sid.length){return sid;}else{var
sid1=sid.substring(0,4);var sid2=sid.substring(4,8);var
sid3=sid.substring(m+2,m+6);var sid4=sid.substring(m+6,m+10);var
sid5=sid.substring(m+10,m+14);return
sid1+'-'+sid2+'-'+sid3+'-'+sid4+'-'+sid5;}};window.ONS_detectLanguageObject
=function(){if(window.location.href.indexOf('channeltraining.intel.com')!=-1)
{onsKey=(typeof __lang!='undefined'?(__lang=='de_DE'?5:__lang=='zh_CN'?
3:__lang=='zh_TW'?8:__lang=='fr_FR'?1:__lang=='it_IT'?13:__lang=='ja_JA'?
4:__lang=='ko_KO'?9:__lang=='pl_PL'?17:__lang=='pt_PT'?6:__lang=='ru_RU'?
2:__lang=='es_ES'?7:__lang=='th_TH'?15:__lang=='tr_TR'?14:__lang=='vi_VI'?
16:__lang=='es_MX'?12:0):0);}else
if(window.location.href.indexOf('community.intel.com')!=-1){onsKey=(typeof
ighf_lang!='undefined'? (ighf_lang=='de_DE'?5:ighf_lang=='zh_CN'?
3:ighf_lang=='zh_TW'?8:ighf_lang=='fr_FR'?1:ighf_lang=='it_IT'?
13:ighf_lang=='ja_JP'?4:ighf_lang=='ko_KR'?9:ighf_lang=='pt_BR'?
6:ighf_lang=='ru_RU'?2:ighf_lang=='es_XL'?12:0):0);}else
if(window.location.href.indexOf('partneruniversity.intel.com')!=-1)
{onsKey=(typeof __lang!='undefined'?(__lang=='de'?5:__lang=='zh'?
3:__lang=='tw'?8:__lang=='fr'?1:__lang=='it'?13:__lang=='ja'?4:__lang=='ko'?
9:__lang=='pl'?17:__lang=='pt'?6:__lang=='ru'?2:__lang=='es'?7:__lang=='th'?
15:__lang=='tr'?14:__lang=='vi'?16:__lang=='mx'?12:0):0);}else
if(window.location.href.indexOf('partner.intel.com')!=-1||
window.location.href.indexOf('points.intel.com')!=-1){onsKey=(typeof langAry!
='undefined'&&langAry.length==2?(langAry[0]+langAry[1]=='dede'?
5:langAry[0]+langAry[1]=='zhcn'?3:langAry[0]+langAry[1]=='zhtw'?
8:langAry[0]+langAry[1]=='frfr'?1:langAry[0]+langAry[1]=='itit'?
13:langAry[0]+langAry[1]=='jajp'?4:langAry[0]+langAry[1]=='kokr'?
9:langAry[0]+langAry[1]=='plpl'?17:langAry[0]+langAry[1]=='ptbr'?
6:langAry[0]+langAry[1]=='ruru'?2:langAry[0]+langAry[1]=='eses'?
7:langAry[0]+langAry[1]=='thth'?15:langAry[0]+langAry[1]=='trtr'?
14:langAry[0]+langAry[1]=='vivn'?16:langAry[0]+langAry[1]=='esxl'?
12:0):0);}};ONS_detectLanguageObject();window.ONS_detectATObject=function(
){if(typeof wap_at_meta!='undefined'&&typeof wap_at_meta.length!
='undefined'){if(wap_at_meta.length>0&&typeof wap_at_meta[0].experience!
='undefined')return wap_at_meta[0].experience.toLowerCase().replace(/
/g,'_');}return ""};window.ONS_setSiteExp=function(){var
exp=ONS_detectATObject();if(exp!=''){var onCObj=new Image();var t=new

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[illegible]

opini\u00119','Berikan Umpan Balik','Donnez votre avis','Give Feedback','\u005D4\u005E2\u005E0\u005E7 \u005DE\u005E9\u005D5\u005D1','Give Feedback','Give Feedback'];var onQT=['Did you find the information you were looking for?','Vous avez trouv\u00E9 les informations que vous recherchez\u00A0?','\u00412\u0044B \u0043D\u00430\u00448\u0043B\u00438 \u00438\u0043D\u00444\u0043E\u00440\u0043C \u00430\u00446\u00438\u0044E, \u0043A\u0043E\u00442\u0043E\u00440\u00443\u0044E \u00438\u00441\u0043A\u00430\u0043B\u00438?','\u0060A8\u00662F\u005426\u00627E\u005230 \u004E86\u0060A8\u009700\u008981\u007684\u004FE1\u00606F\u00FF1F','\u00304A\u0063A2\u003057 \u00306E\u0060C5\u005831\u00306F\u00898B\u003064\u00304B\u00308A\u00307E\u003057\u00305F \u00304B\u00FF1F','Haben Sie die Informationen gefunden, die Sie suchen?','Voc\u00EA encontrou as informa\u00E7\u00F5es que estava procurando?','\u00BFHa encontrado la informaci\u00F3n que buscaba?','\u0060A8\u00662F\u005426\u00627E \u005230\u004E86\u0060A8\u0060F3\u005C0B\u00627E\u007684\u008CC7\u008A0A\u00FF1F','\u00C6D0 \u00D558\u00B294 \u00C815\u00BCF4\u00B97C \u00CC3E\u00C73C\u00C168\u00C2B5\u00B2C8 \u00AE4C?','Did you find the information you were looking for?','Did you find the information you were looking for?','\u00BFEncontr\u00F3 la informaci\u00F3n que estaba buscando?','Hai trovato le informazioni che stavi cercando?','Arad\u00131\u0011F\u00131n\u00131z bilgiyi bulabildiniz mi?','\u00E04\u00E38\u00E13 \u00E1E\u00E1A\u00E02\u00E49\u00E2D\u00E21\u00E39\u00E25\u00E17\u00E35\u00E48 \u00E04\u00E49\u00E19\u00E2B\u00E32\u00E2B\u00E23\u00E37\u00E2D\u00E44\u00E21 \u00E48','B\u001EA1n c\u00F3 t\u00ECm th\u00EA5y th\u00F4ng tin m\u00E0 b\u001EA1n mu\u00EDD1n t\u00ECm kh\u00F4ng?','Czy uda\u00142o Ci si\u00119 znale\u0017A\u00107 potrzebne informacje?','Apakah Anda menemukan informasi yang Anda cari?','Vous avez trouv\u00E9 les informations que vous recherchez?','Did you find the information you were looking for?','\u005DE\u005E6\u005D0\u005EA \u005D0\u005EA \u005D4\u005DE\u005D9\u005D3\u005E2 \u005E9\u005D7\u005D9\u005E4 \u005E9\u005EA?','Did you find the information you were looking for?','Did you find the information you were looking for?'];var onYT=['Yes','Oui','\u00414\u00430','\u00662F','\u00306F\u003044','Ja','Sim','S\u000ED','\u00662F','\u00C608','Yes','Yes','S\u000ED','S\u000EC','Evet','\u00E43\u00E0A\u00E48','C\u000F3','Tak','Ya','Oui','Yes','\u005DB\u005DF','Yes','Yes'];var onNT=['No','Non','\u0041D\u00435\u00442','\u005426','\u003044\u003044\u003048','Nein','N\u000E3o','No','\u005426','\u00C544\u00B2C8 \u00C694','No','No','No','No','Hay\u00131r','\u00E44\u00E21\u00E48\u00E43\u00E0A \u00E48','Kh\u00F4ng','Nie','Tidak','Non','No','\u005DC\u005D0','No','No'];var onBT=['Send','Envoyer','\u0041E\u00442\u0043F\u00440\u00430\u00432\u00438\u00442 \u0044C','\u0053D1\u009001','\u009001\u004FE1','Senden','Enviar','Enviar','\u0050B3\u009001','\u00C804\u00C1A1','Send','Send','Enviar','Invia','G\u000F6nder','\u00E2A\u00E48 \u00E07','G\u001EEDi','Wy\u0015Blij','Kirim','Envoyer','Send','\u005E9\u005DC \u005D7','Send','Send'];var onD1T=['We appreciate all feedback, but cannot reply or give product support. Please do not enter contact information. If you require a response,','\u005E9anmoins, nous ne pouvons pas vous r\u00E9pondre, ni fournir d'assistance produits. Si vous avez besoin d'une r\u00E9ponse,','\u0041C\u0044B \u00440\u00430 \u00434\u0044B \u0043B\u0044E\u00431\u0044B\u0043C \u00432\u00430\u00448\u00438 \u0043C \u0043E\u00442\u00437\u0044B\u00432\u00430\u0043C, \u0043E\u00434\u0043D \u00430\u0043A\u0043E \u0043D\u00435 \u00441\u0043C\u0043E\u00436\u00435\u0043C \u0043E\u00442\u00432\u00435\u00442\u00438\u00442\u0044C \u0043D\u00430 \u0043D \u00438\u00445 \u00438\u0043B\u00438 \u0043F\u00440\u00435\u00434\u0043E\u00441 \u00442\u00430\u00432\u00438\u00442\u0044C \u0043F\u0043E\u00434\u00434\u00435 \u00440\u00436\u0043A\u00443 \u0043F\u00440\u0043E\u00434\u00443\u0043A\u00446 \u00438\u00438. \u00415\u00441\u0043B\u00438 \u00432\u0044B \u00445\u0043E\u00442 \u00438\u00442\u00435 \u0043F\u0043E\u0043B\u00443\u00447\u00438\u00442\u0044C \u0043E\u00442\u00432\u00435\u00442, ','\u00611F\u008C22\u0060A8\u0063D0\u004F9B\u0053CD \u009988\u00FF0C\u004F46\u006211\u004EEC\u0065E0\u006CD5\u0056DE\u00590D\u006216\u007ED9]

u4E88\u4EA7\u54C1\u652F\u6301\u3002\u5982\u679C\u60A8\u9700\u8981\u56DE\u5E94\uFF0C',\u30D5\u30A3\u30FC\u30C9\u30D0\u30C3\u30AF\u3092\u3044\u305F\u3060\u304D\u3042\u308A\u304C\u3068\u3046\u3054\u3056\u3044\u307E\u3059\u3002\u7533\u3057\u8A33\u3042\u308A\u307E\u305B\u3093\u304C\u3001\u8FD4\u4FE1\u3084\u88FD\u54C1\u30B5\u30DD\u30FC\u30C8\u306F\u884C\u3063\u3066\u304A\u308A\u307E\u305B\u3093\u3002\u5BFE\u5FDC\u304C\u5FC5\u8981\u306A\u5834\u5408\u306F\u3001', 'Wir freuen uns \u00FCber Ihre Kommentare und Anregungen, k\u00F6nnen Ihre Nachricht aber nicht beantworten oder Produktsupport bieten. Wenn Sie eine Antwort ben\u00F6tigen, ', 'N\u00F3s apreciamos todos os coment\u00E1rios, mas n\u00E3o podemos responde-los ou fornecer suporte para produtos. Se voc\u00EA precisar de uma resposta, ', 'Agradecemos todos sus comentarios, pero no podemos contestar o proporcionar asistencia de productos. Si necesita una respuesta, ',\u6211\u5011\u5341\u5206\u611F\u8B1D\u6240\u6709\u7684\u610F\u898B\u53CD\u61C9\uFF0C\u4F46\u7121\u6CD5\u56DE\u8986\u6216\u7D66\u4E88\u7522\u54C1\u652F\u63F4\u3002\u5982\u679C\u60A8\u9700\u8981\u56DE\u8986\uFF0C',\uD53C\uB4DC\uBC31\uC744 \uC8FC\uC154\uC11C \uAC10\uC0AC\uD569\uB2C8\uB2E4. \uD68C\uC2E0\uC744 \uB4DC\uB9AC\uAC70\uB098 \uC81C\uD488 \uC9C0\uC6D0\uC740 \uC81C\uACF5\uD574 \uB4DC\uB9B4 \uC218 \uC5C6\uC73C\uB2C8 \uC591\uD574 \uBD80\uD0C1\uB4DC\uB9BD\uB2C8\uB2E4. \uC751\uB2F5\uC774 \uD544\uC694 \uD558\uC2DC\uBA74 ', 'We appreciate all feedback, but cannot reply or give product support. Please do not enter contact information. If you require a response, ', 'We appreciate all feedback, but cannot reply or give product support. Please do not enter contact information. If you require a response, ', 'Agradecemos todos los comentarios, pero no podemos responder o proporcionar asistencia para productos. Si necesita una respuesta, ', 'Apprezziamo ogni tipo di feedback, ma non possiamo rispondere o fornire supporto sui prodotti. Se hai bisogno di una risposta, ', 'Geri bildiriminiz il\u00E7in te\u015Fekk\u00FCr ederiz. Ancak yan\u0131t veremiyor veya \u00FCr\u00FCn deste\u011Fi sa\u011Flayam\u0131yoruz. Yan\u0131t alman\u0131z gerekiyorsa ',\u00E4\u00E2\u00E3\u00E2\u00E2\u00E3\u00E9\u00E1\u00E4\u00E3\u00E1\u00E7\u00E8\u00E0\u00E4\u00E2\u00E3\u00E2\u00E4\u00E3\u00E1\u00E2\u00E7\u00E9 \u00E1\u00E5\u00E4\u00E2\u00E3\u00E2\u00E1\u00E5\u00E2\u00E1\u00E0\u00E5\u00E3\u00E1\u00E2\u00E3\u00E7\u00E2\u00E3\u00E4\u00E2\u00E9\u00E0\u00E3\u00E2\u00E2\u00E1\u00E9\u00E3\u00E9\u00E1\u00E4\u00E9\u00E3\u00E9\u00E1\u00E5\u00E2\u00E0\u00E3\u00E1\u00E3\u00E1\u00E4\u00E9 \u00E1\u00E6\u00E9\u00E3\u00E4\u00E3\u00E1\u00E5\u00E9\u00E2\u00E0\u00E0\u00E3\u00E2\u00E3\u00E1\u00E5\u00E2\u00E1 ', 'Ch\u00Fang t\u00F4i r\u1EA5t tr\u00E2n tr\u1ECDng m\u1ECDi ph\u1EA3n h\u1ED3i, nh\u01B0ng kh\u00F4ng th\u1EC3 tr\u1EA3 l\u1EDD ho\u1EB7c h\u1ED7 tr\u1EE3 s\u1EA3n ph\u1EA9m. N\u1EBFu b\u1EA1n c\u1EA7n c\u00F3 c\u00E2u tr\u1EA3 l\u1EDD ph\u1EA3n h\u1ED3i, ', 'Jeste\u015Bmy wdzi\u0119czni za wszystkie komentarze, ale nie mo\u017Cemy udzieli\u0107 odpowiedzi ani wsparcia produktowego. Je\u015Bli potrzebujesz odpowiedzi, ', 'Kami menghargai semua umpan balik, tapi tidak dapat membalas atau memberikan dukungan produk. Jika Anda membutuhkan tanggapan, ', 'Nous vous remercions pour vos commentaires. N\u00E9anmoins, nous ne pouvons pas vous r\u00E9pondre, ni fournir d'assistance produits. Si vous avez besoin d'une r\u00E9ponse, ', 'We appreciate all feedback, but cannot reply or give product support. Please do not enter contact information. If you require a response, ',\u05D0\u05E0\u05D5 \u05DE\u05E2\u05E8\u05D9\u05DB\u05D9\u05DD \u05DB\u05DC \u05DE\u05E9\u05D5\u05D1, \u05D0\u05DA \u05D0\u05D9\u05E0\u05E0\u05D5 \u05D9\u05DB\

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u05D5\u05DC\u05D4\u05DD\u05D4\u05D9\u05E9\u05D9\u05D1 \u05D0\u05D5 \u05DC\u05D4\u05E2\u05E0\u05D9\u05E7 \u05EA\u05DE\u05D9\u05DB\u05D4 \u05D1\u05DE\u05D5\u05E6\u05E8. \u05D0\u05DD \u05D0\u05EA\u05D4 \u05D6\u05E7\u05D5\u05E7 \u05DC\u05EA\u05D2\u05D5\u05D1\u05D4, ', 'We appreciate all feedback, but cannot reply or give product support. Please do not enter contact information. If you require a response, ', 'We appreciate all feedback, but cannot reply or give product support. Please do not enter contact information. If you require a response, '];var onD2T=['contact support.','contactez l\u02019assistance.','\u043E\u0431\u0440\u0430\u0442\u0438\u0442\u0435\u0441\u0441\u044C \u0432 \u0441\u043E\u0443\u0436\u0431\u0443 \u043F\u043E\u043E\u0434\u0434\u0430\u0436\u043A\u0438.','\u8BF7\u8054\u7CFB\u652F\u6301\u90E8\u95E8\u3002','\u30B5\u30DD\u30FC\u30C8\u306B\u304A\u554F\u3044\u5408\u308F\u305B\u304F\u3060\u3055\u3044\u3002','wenden Sie sich bitte an den Support.','entre em contato com o suporte.','p\u00F3ngase en contacto con soporte.','\u8ACB\u806F\u7D61\u652F\u63F4\u3002','\uC9C0\uC6D0uD300uC5D0 \uBB38uC758 \uBC14\uB78D\uB2C8\uB2E4.','contact support.','contact support.','p\u00F3ngase en contacto con el servicio de asistencia.','contatta il supporto.','\u00FCften Destek b\u00F6l\u00FCm\u00FCne ba\u015Fvurun.','\u0E01\u0E23\u0E38\u0E13\u0E32\u0E15\u0E34\u0E14\u0E15\u0E48\u0E2D\u0E1D\u0E48\u0E32\u0E22\u0E1A\u0E23\u0E34\u0E01\u0E32\u0E23\u0E2A\u0E19\u0E31\u0E1A\u0E2A\u0E19\u0E38\u0E19','xin li\u00EAn h\u1EC7 nh\u00F3m h\u1ED7 tr\u1EE3.','skontaktuj si\u0119 z pomoc\u0105 techniczn\u0105.','\u05E6\u05D5\u05E8 \u05E7\u05E9\u05E8 \u05E2\u05DD \u05D4\u05EA\u05DE\u05D9\u05DB\u05D4.','contact support.','contact support.'];var onLT=['https://www.intel.com/content/www/us/en/support/contact-intel.com','https://www.intel.fr/content/www/fr/fr/support/contact-intel.com','https://www.intel.ru/content/www/ru/ru/support/contact-intel.com','https://www.intel.cn/content/www/cn/zh/support/contact-intel.com','https://www.intel.co.jp/content/www/jp/ja/support/contact-intel.com','https://www.intel.de/content/www/de/de/support/contact-intel.com','https://www.intel.com.br/content/www/br/pt/support/contact-intel.com','https://www.intel.es/content/www/es/es/support/contact-intel.com','https://www.intel.com.tw/content/www/tw/zh/support/contact-intel.com','https://www.intel.co.kr/content/www/kr/ko/support/contact-intel.com','https://www.intel.sg/content/www/xa/en/support/contact-intel.com','https://www.intel.co.uk/content/www/uk/en/support/contact-intel.com','https://www.intel.la/content/www/xl/es/support/contact-intel.com','https://www.intel.it/content/www/it/it/support/contact-intel.com','https://www.intel.com.tr/content/www/tr/tr/support/contact-intel.com','https://www.thailand.intel.com/content/www/th/th/support/contact-intel.com','https://www.intel.vn/content/www/vn/vi/support/contact-intel.com','https://www.intel.pl/content/www/pl/pl/support/contact-intel.com','https://www.intel.co.id/content/www/id/id/support/contact-intel.com','https://www.intel.ca/content/www/ca/fr/support/contact-intel.com','https://www.intel.ca/content/www/ca/en/support/contact-intel.com','https://www.intel.co.il/content/www/us/en/support/contact-intel.com','https://www.intel.com.au/content/www/au/en/support/contact-intel.com','https://www.intel.in/content/www/in/en/support/contact-intel.com'];onObj.innerHTML='<div style="height:40px;padding-top:0;padding-right:15px;padding-bottom:0;padding-left:15px;margin:0;color:#FFFFFF;background-color:#00AEEF;font-family:\'intel-clear\'.\'Intel-Clear\'.\'intel clear\'.\'Intel
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Clear\','intelclear\','IntelClear\','Tahoma\','tahoma\','Helvetica\','helvetica\','Arial,sans-serif;font-size:16px;line-height:1;font-weight:bold;"><h2 style="display:inline-block;vertical-align:middle;margin-top:7px;margin-bottom:0;padding:0;color:#FFFFFF;font-family:\'intel-clear\','Intel-Clear\','intelclear\','IntelClear\','Tahoma\','tahoma\','Helvetica\','helvetica\','Arial,sans-serif;font-size:16px;line-height:1;font-weight:bold;">'+onFT[onsKey]+'</h2><button type="button" style="display:inline-block;vertical-align:middle;float:right;margin-top:5px;margin-bottom:0;padding:.3125em;cursor:pointer;background-color:transparent;border-color:transparent;color:#FFFFFF;font-family:\'intel-clear\','Intel-Clear\','intelclear\','IntelClear\','Tahoma\','tahoma\','Helvetica\','helvetica\','Arial,sans-serif;font-size:18px;line-height:1;font-weight:normal;" onclick="ONS\_closeYN();">X</button></div><div style="padding:15px;background-color:#FFFFFF;border-left:solid 1px #D7D7D7;color:#555555;"><p style="padding:0;margin-top:0;margin-bottom:15px;text-align:center;color:#555555;font-family:\'intel-clear\','Intel-Clear\','intel clear\','IntelClear\','Tahoma\','tahoma\','Helvetica\','helvetica\','Arial,sans-serif;font-size:14px;line-height:1.25;font-weight:normal;">'+onQT[onsKey]+'</p><div style="margin-top:0;padding-left:0;margin-bottom:15px;text-align:center;"><div id="feedback-yes-block" style="display:inline-block;width:70px;height:30px;margin-right:20px;padding:0;text-align:left;" onclick="ONS\_clickFeedback(1);"><input id="feedback-yes" type="radio" style="display:none;margin:0;padding:0;border:none;outline:none;-moz-user-select:none;" name="feedback-yes-no" value="1" autocomplete="off" /><label for="feedback-yes" style="box-sizing:border-box;display:inline-block;vertical-align:middle;margin:0;padding:0;background-color:transparent;background-image:url(https://www.intel.com/etc.clientlibs/settings/wcm/designs/ver/201112/intel/clientlibs/supportLibs/resources/images/support/yes-no-sprite.png);background-repeat:no-repeat;background-position:right top;text-align:left;cursor:pointer;width:31px;height:30px;border:solid 1px #FFFFFF;"><span style="display:inline-block;margin:0px 0px 0px 35px;padding:0;vertical-align:text-middle;text-align:left;text-transform:uppercase;color:#555555;font-family:\'intel-clear\','Intel-Clear\','intelclear\','IntelClear\','Tahoma\','tahoma\','Helvetica\','helvetica\','Arial,sans-serif;font-size:14px;line-height:28px;font-weight:normal;height:28px;width:50px;">'+onYT[onsKey]+'</span></label></div><div id="feedback-no-block" style="display:inline-block;width:70px;height:30px;margin:0;padding:0;text-align:left;" onclick="ONS\_clickFeedback(2);"><input id="feedback-no" type="radio" style="display:none;margin:0;padding:0;border:none;outline:none;-moz-user-select:none;" name="feedback-yes-no" value="2" autocomplete="off" /><label for="feedback-no" style="box-sizing:border-box;display:inline-block;vertical-align:middle;margin:0;padding:0;background-color:transparent;background-image:url(https://www.intel.com/etc.clientlibs/settings/wcm/designs/ver/201112/intel/clientlibs/supportLibs/resources/images/support/yes-no-sprite.png);background-repeat:no-repeat;background-position:right top;text-

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align:left;cursor:pointer;width:31px;height:30px;border:solid 1px
#FFFFFF;"><span style="display:inline-block;margin:0px 0px 0px
35px;padding:0;vertical-align:text-middle;text-align:left;text-
transform:uppercase;color:#555555;font-family:\'intel-clear\',\'Intel-Clear\',\'intel
clear\',\'Intel
Clear\',\'intelclear\',\'IntelClear\',Tahoma,\'tahoma\',Helvetica,\'helvetica\',Arial,sa
ns-serif;font-size:14px;line-height:28px;font-
weight:normal;height:28px;width:50px;">'+onNT[onsKey]+'</span></
label></div></div><div style="text-align:center;"><button type="button"
onclick="ONS_submitYN();" style="margin-top:0;margin-
bottom:15px;padding:.25em 4em;border:none;border-
radius:3px;cursor:pointer;background-color:#00AEEF;color:#FFFFFF;font-
family:\'intel-clear\',\'Intel-Clear\',\'intel clear\',\'Intel
Clear\',\'intelclear\',\'IntelClear\',Tahoma,\'tahoma\',Helvetica,\'helvetica\',Arial,sa
ns-serif;font-size:16px;line-height:1.25;font-weight:normal;">'+onBT[onsKey]
+'</button></div><p style="padding:0;margin-top:0;margin-
bottom:0;color:#BBBBBB;font-family:\'intel-clear\',\'Intel-Clear\',\'intel
clear\',\'Intel
Clear\',\'intelclear\',\'IntelClear\',Tahoma,\'tahoma\',Helvetica,\'helvetica\',Arial,sa
ns-serif;font-size:12px;line-height:1.25;font-weight:normal;">'+onD1T[onsKey]
+'<a href="'+onLT[onsKey]+'"' style="text-decoration:none;color:#0071C5;font-
family:\'intel-clear\',\'Intel-Clear\',\'intel clear\',\'Intel
Clear\',\'intelclear\',\'IntelClear\',Tahoma,\'tahoma\',Helvetica,\'helvetica\',Arial,sa
ns-serif;font-size:12px;line-height:1.25;font-weight:normal;"
target="_blank">'+onD2T[onsKey]+'</a></p></div>";onObj.style.cssText='dis
play:block;position:fixed;z-index:9998;bottom:15px;right:15px;background-
color:rgba(0,0,0,.2);width:90%;min-width:270px!important;max-width:400px!
important;height:auto;margin:0;padding-right:.5em;padding-
bottom:.5em;';dD.body.appendChild(onObj);}function ONS_clickFeedback(v){var
onObj;if(v==1){ONS_getObj('feedback-
yes').checked=true;ONS_getObj('feedback-
no').checked=false;onObj=ONS_getObj('feedback-yes-
block');onObj.getElementsByTagName('label')[0].style.backgroundPosition = 'left
top';onObj=ONS_getObj('feedback-no-
block');onObj.getElementsByTagName('label')[0].style.backgroundPosition =
'right top';}else{ONS_getObj('feedback-
yes').checked=false;ONS_getObj('feedback-
no').checked=true;onObj=ONS_getObj('feedback-yes-
block');onObj.getElementsByTagName('label')[0].style.backgroundPosition =
'right top';onObj=ONS_getObj('feedback-no-
block');onObj.getElementsByTagName('label')[0].style.backgroundPosition = 'left
top';}}function ONS_closeYN()
{ONS_sCookie('inteliqresearch','4',cd,ch);ONS_sCookie('inteliqresearch2','4',cd,c
h);var onObj=ONS_getObj('feedback-
widget');if(onObj)onObj.style.display='none';}function ONS_submitYN(){var
onAT=['Please provide an answer to the question(s).','Veuillez fournir une r\
u00E9ponse \u00E0 la ou aux questions.','\u041F\u043E\u0436\u0430\u043B\
u0443\u0439\u0441\u0442\u0430, \u043E\u0442\u0432\u0435\u0442\u044C\
u0442\u0435 \u043D\u0430 \u0432\u043E\u043F\u0440\u043E\u0441\u044B.','\
u8BF7\u63D0\u4F9B\u95EE\u9898\u7684\u7B54\u6848\u3002','u8CEA\u554F\
u306B\u56DE\u7B54\u3057\u3066\u304F\u3060\u3055\u3044\u3002','Bitte
geben Sie eine Antwort auf die Frage(n) an.','Forne\u00E7a uma resposta para
a(s) pergunta(s).','Proporcione una respuesta a la(s) pregunta(s).','u8ACB\
u63D0\u4F9B\u554F\u984C\u7684\u7B54\u6848\u3002','uC9C8\uBB38\uC5D0 \

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uB2F5\uD574 \uC8FC\uC2ED\uC2DC\uC624.','Please provide an answer to the question(s).','Please provide an answer to the question(s).','Proporcione una respuesta a la(s) pregunta(s).','Fornisca una risposta alla domanda (alle domande).','Sorular\u0131 yan\u0131tlay\u0131n.','\u0E42\u0E1B\u0E23\u0E14\u0E23\u0E30\u0E1A\u0E38\u0E04\u0E33\u0E15\u0E2D\u0E1A\u0E2A\u0E33\u0E2B\u0E23\u0E31\u0E1A\u0E04\u0E33\u0E16\u0E32\u0E21','Vui l\u00F2ng tr\u1EA3 l\u1EDD c\u00E1c c\u00E2u h\u1ECF.','Podaj odpowied\u017A na pytania.','Silakan berikan jawaban untuk pertanyaan.','Veuillez fournir une r\u00E9ponse \u00E0 la ou aux questions.','Please provide an answer to the question(s).','\u05E0\u05D0 \u05DC\u05E2\u05E0\u05D5\u05EA \u05E2\u05DC \u05D4\u05E9\u05D0\u05DC\u05D5\u05EA.','Please provide an answer to the question(s).','Please provide an answer to the question(s).'];var onLC=['en-US','fr-FR','ru-RU','zh-CN','ja-JP','de-DE','pt-BR','es-ES','zh-TW','ko-KR','en-XA','en-UK','es-XL','it-IT','tr-TR','th-TH','vi-VN','pl-PL','id-ID','fr-CA','en-CA','he-IL','en-AU','en-IN'];var onA1='';var onA3='0';if(ONS\_gCookie('inteliqresearch')==='3'){onA3='1';}var onObj=ONS\_getObj('feedback-yes');if(onObj&&onObj.checked)onA1='1';onObj=ONS\_getObj('feedback-no');if(onObj&&onObj.checked)onA1='2';if(onA1==''){wN.alert(onAT[onsKey]);return;}else if(ONS\_gCookie('inteliqresearch')==='3' || ONS\_gCookie('inteliqresearch2')==='3'){onObj=dD.createElement('script');onObj.src=dD.location.protocol+'//onsite2.researchintel.com/xWidget/httpPost/W14JT015.ashx?onYesNo='+encodeURIComponent(onA1)+'&ss='+wN.screen.width+'x'+wN.screen.height+'&onCurl='+encodeURIComponent(dD.location)+'&a3='+encodeURIComponent(onA3)+'&onRUrl='+encodeURIComponent(ONS\_gCookie(cn+'REF'))+'&onLang='+encodeURIComponent(onLC[onsKey])+'&sid='+encodeURIComponent(onsUSID)+'&uid='+encodeURIComponent(onsUUID);dD.body.appendChild(onObj);}ONS\_collectYN();ONS\_collectDataLake();}function ONS\_CDCollect(){if(ONS\_gCookie(cn+'STG')==='16' || ONS\_gCookie(cn+'STG')==='24' || ONS\_gCookie(cn+'STG')==='33'){var cd1,cd17,cd18,cd20,cd34,cd37,cd40,cd41;cd1=(typeof utag\_data!='undefined'&&typeof utag\_data['wa\_geo']!='undefined')?utag\_data['wa\_geo']:'';cd17=(typeof utag\_data!='undefined'&&typeof utag\_data['wa\_target\_audience']!='undefined')?utag\_data['wa\_target\_audience']:'';cd18=(typeof utag\_data!='undefined'&&typeof utag\_data['wa\_resource\_type']!='undefined')?utag\_data['wa\_resource\_type']:'';cd20=(typeof utag\_data!='undefined'&&typeof utag\_data['content\_org\_initiative']!='undefined')?utag\_data['content\_org\_initiative']:'';cd34=(typeof utag\_data!='undefined'&&typeof utag\_data['wa\_system\_type']!='undefined')?utag\_data['wa\_system\_type']:'';cd37=(typeof utag\_data!='undefined'&&typeof utag\_data['wa\_topic']!='undefined')?utag\_data['wa\_topic']:'';cd40=(typeof utag\_data!='undefined'&&typeof utag\_data['target\_campaign\_recipe\_name']!='undefined')?utag\_data['target\_campaign\_recipe\_name']:'';cd41=(typeof utag\_data!='undefined'&&typeof utag\_data['wa\_emt\_org']!='undefined')?utag\_data['wa\_emt\_org']:'';if(cd1!='' || cd17!='' || cd18!='' || cd20!='' || cd34!='' || cd37!='' || cd40!='' || cd41!=''){var cdcollect=new Image();var t=new Date();var qs='?cUrl='+encodeURIComponent(ONS\_gURL(dD.location,true))+'&t='+Date.UTC(t.getFullYear(),t.getMonth()+1,t.getDate(),t.getHours(),t.getMinutes(),t.getSeconds());qs+='&cd1='+encodeURIComponent(cd1);qs+='&cd17='+encodeURIComponent(cd17);qs+='&cd18='+encodeURIComponent(cd18);qs+='&cd20='+encodeURIComponent(cd20);qs+='&cd34='+encodeURIComponent(cd34);qs+='&cd37='+encodeURIComponent(cd37);

cd37);qs+='&cd40='+encodeURIComponent(cd40);qs+='&cd41='+encodeURIComponent(cd41);cdcollect.src=onsPATH+'saveCDData.asp'+qs;}} }wN.yn\_header\_background\_color\_css='#004A86';wN.yn\_header\_text\_color\_css='#FFFFFF';wN.yn\_body\_background\_color\_css='#FFFFFF';wN.yn\_body\_text\_color\_css='#555555';wN.yn\_body\_link\_color\_css='#0071C5';wN.yn\_text\_family\_css='\intel-clear','\Intel-Clear','\intel clear','\Intel Clear','\intelclear','\IntelClear','Tahoma','tahoma','Helvetica','helvetica','Arial,sans-serif';wN.yn\_shadow\_color\_css='rgba(0,0,0,.2)';wN.yn\_api\_url=dD.location.protocol+'//onsite2.researchintel.com/xWidget/httpPost/W21JT043.ashx';wN.yn\_icon\_uri=' MVEUAAAD////////////////////////////////////+4/eNVAANnRSTIMATrPqqpdh+cwH4cZ95dTBdWwS+/WhnlQhGxgnBO7QjkPe2ohSSS2INzMNCrIYP/KuZ1Q7XJ6DFJl+AAADhkIEQVRYw82W2XaqQBBFC1FEFBVnRIIGTRwSpyT1/59206PdbStwFw/Zb56FRVPDqYa/QSv0J1AiVUQcQWn0OvhLFcrizUXCEEpiU0fKO5RDF/H/AvZealOL/Eji1Vvzwjn05ojpvVwh8dwE6gUDNkZIMOWpT9TXGOKCVT4ukRAZ8paWt9L4jUxOWDjvY00+UrUGwAKec1fjjjQX62u6IALW02G0y9O2IVr7dkhVh78UOcHQmcFTvvtlqejynpY33AKniZKwtjmlsho63lCEDHtSeEQDdt9FPgePGCEDLenyYu5zQ1iZ9wUQdv2kBXkJHqTU20FFmJP/Ke5hTs6yLIY0hA9rOKKI7ErJTPRNVWdvRNpsHk2V5dXXkh7PFfeTV3zanjjblafJzR9u7/PqZ7evb0SsoWBk8+fmNHvPaJWLUFa/mBZDc+F+QRY/+At/LEGJHGFz6r4hi46ciFmlklhaYjPSG2eVaStk2+z0BGJFNZcfuZiQ8KG2ysG2H/gXTvBGpFWpl0ZwRzstTaQ3hnO/2nKMUK14Q3TwhqP1H7o7cSL6UF0Yy5xXsHPZg0KKOAFyoclaOGOk9K/yyOoXuChwx3utdfoA76hwVglam+CitOkSsS9D0lovQmOAKmsloOHdmxMtzZ4FTL+iKj+opzTOCRaoE4IWkaSxSDqdr+CNBvRJZh02sTy1+wFpxBYadOia6CqKe9QnfgO+NPU1OXYIFifeUKp4R/Djjfp7Lnpqx6kMCJOBbl4z/fwmWhGZNSfSE0pbVc5yF/ZYwGwqYjS2ARNepRmSzlmZr5JS52M5ESPr6wEhZD/e+DZqYU4GjrYcg5snsJIHfHt8YW66qnMEqnO8s0nqN9gYZWO6ubMMNmorrVmxvnlK56d5AJMp0SFRbsmHAeYn2NluG11qP0shLbAIDmjEiDi/tkkCJ8ruLULjbp2f+nl/Sa/LT10L2H1w8hfMS3+hm77g07xo5qzMMgGFWXCLZzL5yNU2e/v9bw0W1j5mMbTfdwdHsPOZEXIMGp7ozQk85DgK8SGe8SzR2JJ5RsMZuvZ22YLGTPvJodjqxKgQTsxijhgXeRBTijjc80MS3CZyyaQhX3Aa6ATh0yeQW4+rc6qefb8EwpwRYZ9DMakujEUwUFBuLX0Qu3Dg2KsZXmnUAbyhNUZIMNGILcs1vwqVhoL5sLI0aic0jf4C/wDX1h7D2aoWzIAAAAASUVORK5CYII=';wN.yn\_load\_uri='';wN.yn\_feedback\_text='Give Feedback';wN.yn\_question\_text='Did you find this information useful?';wN.yn\_question\_text2='How likely is it that you would recommend Intel to a friend or colleague?';wN.yn\_question\_text3='Please tell us how we can improve the experience to better meet your needs?';wN.yn\_yes\_text='Yes';wN.yn\_no\_text='No';wN.yn\_nps\_text0='Not at All



[illegible]

[illegible]

u3044\u3002';wN.yn\_yes\_text='\u306F\u3044';wN.yn\_no\_text='\u3044\u3044\u3048';wN.yn\_nps\_text0='\u53EF\u80FD\u6027\u304C\u5168\u304F\u306A\u3044';wN.yn\_nps\_text10='\u53EF\u80FD\u6027\u304C\u975E\u5E38\u306B\u9AD8\u3044';wN.yn\_placeholder\_text='\u3054\u610F\u898B\u304C\u3042\u308C\u3070\u304A\u7B54\u3048\u304F\u3060\u3055\u3044\uFF1A';wN.yn\_disclaimer\_body\_text='\u30D5\u30A3\u30FC\u30C9\u30D0\u30C3\u30AF\u3092\u3044\u305F\u3060\u304D\u3042\u308A\u304C\u3068\u3046\u3054\u3056\u3044\u307E\u3059\u3002\u7533\u3057\u8A33\u3042\u308A\u307E\u305B\u3093\u304C\u3001\u8FD4\u4FE1\u3084\u88FD\u54C1\u30B5\u30DD\u30FC\u30C8\u306F\u884C\u3063\u3066\u304A\u308A\u307E\u305B\u3093\u3002\u5BFE\u5FDC\u304C\u5FC5\u8981\u306A\u5834\u5408\u306F\u3001';wN.yn\_disclaimer\_link\_text='\u30B5\u30DD\u30FC\u30C8\u306B\u304A\u554F\u3044\u5408\u308F\u305B\u304F\u3060\u3055\u3044\u3002';wN.yn\_submit\_text='\u9001\u4FE1';wN.yn\_alert\_text='\u8CEA\u554F\u306B\u56DE\u7B54\u3057\u3066\u304F\u3060\u3055\u3044\u3002';wN.yn\_success\_text='\u672C\u30A2\u30F3\u30B1\u30FC\u30C8\u306B\u3054\u5354\u529B\u3044\u305F\u3060\u304D\u3001\u3042\u308A\u304C\u3068\u3046\u3054\u3056\u3044\u307E\u3059\u3002';wN.yn\_lang='ja-JP';wN.yn\_contact\_url='https://www.intel.co.jp/content/www/jp/ja/support/contact-intel.com';}if(onsKey==5){wN.yn\_feedback\_text='Teilen Sie uns Ihr Feedback mit';wN.yn\_question\_text='Fanden Sie diese Informationen n\u00FCtzlich?';wN.yn\_question\_text2='Wie wahrscheinlich ist es, dass Sie Intel Freunden oder Kollegen empfehlen werden?';wN.yn\_question\_text3='Wie k\u00F6nnen wir Ihre Erfahrung verbessern, um Ihren Bed\u00FCrfnissen gerecht zu werden?';wN.yn\_yes\_text='Ja';wN.yn\_no\_text='Nein';wN.yn\_nps\_text0='Sehr unwahrscheinlich';wN.yn\_nps\_text10='Sehr wahrscheinlich';wN.yn\_placeholder\_text='Kommentare:';wN.yn\_disclaimer\_body\_text='Wir freuen uns \u00FCber Ihre Kommentare und Anregungen, k\u00F6nnen Ihre Nachricht aber nicht beantworten oder Produktsupport bieten. Wenn Sie eine Antwort ben\u00F6tigen, ';wN.yn\_disclaimer\_link\_text='wenden Sie sich bitte an den Support.';wN.yn\_submit\_text='Absenden';wN.yn\_alert\_text='Bitte geben Sie eine Antwort auf die Frage(n) an.';wN.yn\_success\_text='Vielen Dank f\u00FCr Ihre Teilnahme an dieser Umfrage.';wN.yn\_lang='de-DE';wN.yn\_contact\_url='https://www.intel.de/content/www/de/de/support/contact-intel.com';}if(onsKey==6){wN.yn\_feedback\_text='D\u00EA a sua opini\u00E3o';wN.yn\_question\_text='Voc\u00EA achou esta informa\u00E7\u00E3o \u00FAtil?';wN.yn\_question\_text2='Qual \u00E9 a probabilidade de voc\u00EA recomendar a Intel para um amigo ou um colega?';wN.yn\_question\_text3='Diga como podemos aprimorar a experi\u00EAncia para atender melhor \u00E0s suas necessidades.';wN.yn\_yes\_text='Sim';wN.yn\_no\_text='N\u00E3o';wN.yn\_nps\_text0='Nem um pouco prov\u00E1vel';wN.yn\_nps\_text10='Extremamente prov\u00E1vel';wN.yn\_placeholder\_text='Coment\u00E1rios:';wN.yn\_disclaimer\_body\_text='N\u00F3s apreciamos todos os coment\u00E1rios, mas n\u00E3o podemos responde-los ou fornecer suporte para produtos. Se voc\u00EA precisar de uma resposta, ';wN.yn\_disclaimer\_link\_text='entre em contato com o suporte.';wN.yn\_submit\_text='Enviar';wN.yn\_alert\_text='Forne\u00E7a uma resposta para a(s) pergunta(s).';wN.yn\_success\_text='Muito obrigado por participar desta pesquisa.';wN.yn\_lang='pt-BR';wN.yn\_contact\_url='https://www.intel.com.br/content/www/br/pt/support/contact-intel.com';}if(onsKey==7){wN.yn\_feedback\_text='Dejar comentario';wN.yn\_question\_text='\u00BFLe ha resultado \u00FAtil esta informaci\u00F3n?';wN.yn\_question\_text2='\u00BFCu\u00E9 su opini\u00F3n sobre esta informaci\u00F3n?';wN.yn\_question\_text3='C\u00F3mo podemos mejorar esta informaci\u00F3n?';wN.yn\_lang='es-ES';wN.yn\_contact\_url='https://www.intel.es/content/www/es/es/support/contact-intel.com';}

u00E1 es la probabilidad de que recomiende Intel a un amigo o colega?';wN.yn\_question\_text3='Cu\u00E9ntenos c\u00F3mo podemos mejorar la experiencia para satisfacer mejor sus necesidades.';wN.yn\_yes\_text='S\u00ED';wN.yn\_no\_text='No';wN.yn\_nps\_text0='Sumamente improbable';wN.yn\_nps\_text10='Sumamente probable';wN.yn\_placeholder\_text='Comentarios:';wN.yn\_disclaimer\_body\_text='Agradecemos todos los comentarios, pero no podemos responder o proporcionar asistencia para productos. Si necesita una respuesta,';wN.yn\_disclaimer\_link\_text='p\u00F3ngase en contacto con el servicio de asistencia.';wN.yn\_submit\_text='Enviar';wN.yn\_alert\_text='Proporcione una respuesta a la(s) pregunta(s).';wN.yn\_success\_text='Le agradecemos que haya dedicado su tiempo a completar esta encuesta.';wN.yn\_lang='es-ES';wN.yn\_contact\_url='https://www.intel.es/content/www/es/es/support/contact-intel.com';}if(onsKey==8){wN.yn\_feedback\_text='\u63D0\u4F9B\u610F\u898B\u8207\u5EFA\u8B70';wN.yn\_question\_text='\u9019\u500B\u8CC7\u8A0A\u5C0D\u60A8\u662F\u5426\u6709\u5E6B\u52A9\u5462\uFF1F';wN.yn\_question\_text2='\u60A8\u6709\u6C92\u6709\u53EF\u80FD\u5411\u670B\u53CB\u6216\u540C\u4E8B\u63A8\u85A6\u4F7F\u7528 Intel\uFF1F';wN.yn\_question\_text3='\u8ACB\u544A\u8A34\u6211\u5011\u8A72\u5982\u4F55\u6539\u5584\u9AD4\u9A57\uFF0C\u4EE5\u66F4\u52A0\u6EFF\u8DB3\u60A8\u7684\u9700\u6C42\uFF1F';wN.yn\_yes\_text='\u662F';wN.yn\_no\_text='\u5426';wN.yn\_nps\_text0='\u6975\u4E0D\u53EF\u80FD';wN.yn\_nps\_text10='\u6975\u6709\u53EF\u80FD';wN.yn\_placeholder\_text='\u610F\u898B\uFF1A';wN.yn\_disclaimer\_body\_text='\u6211\u5011\u5341\u5206\u611F\u8B1D\u6240\u6709\u7684\u610F\u898B\u53CD\u61C9\uFF0C\u4F46\u7121\u6CD5\u56DE\u8986\u6216\u7D66\u4E88\u7522\u54C1\u652F\u63F4\u3002\u5982\u679C\u60A8\u9700\u8981\u56DE\u8986\uFF0C';wN.yn\_disclaimer\_link\_text='\u8ACB\u806F\u7D61\u652F\u63F4\u3002';wN.yn\_submit\_text='\u50B3\u9001';wN.yn\_alert\_text='\u8ACB\u63D0\u4F9B\u554F\u984C\u7684\u7B54\u6848\u3002';wN.yn\_success\_text='\u611F\u8B1D\u60A8\u64A5\u5197\u5B8C\u6210\u9019\u4EFD\u554F\u5377\u8ABF\u67E5\u3002';wN.yn\_lang='zh-TW';wN.yn\_contact\_url='https://www.intel.com.tw/content/www/tw/zh/support/contact-intel.com';}if(onsKey==9){wN.yn\_feedback\_text='\uD53C\uB4DC\uBC31';wN.yn\_question\_text='\uC774 \uC815\uBCF4\uAC00 \uB3C4\uC6C0\uC774 \uB418\uC168\uB098\uC694?';wN.yn\_question\_text2='\uC778\uD154\uC744 \uCE5C\uAD6C\uB098 \uB3D9\uB8CC\uC5D0\uAC8C \uCD94\uCC9C\uD560\uAC00\uB2A5\uC131\uC774 \uC5B4\uB290 \uC815\uB3C4 \uB429\uB2C8\uAE4C?';wN.yn\_question\_text3='\uADC0\uD558\uC758 \uD544\uC694\uB97C \uB354 \uC798 \uCC44\uC6B8 \uC218 \uC788\uB294 \uD658\uACBD\uC744 \uAC1C\uC120\uD560 \uBC29\uBC95\uC744 \uC800\uD76C\uC5D0\uAC8C \uC54C\uB824\uC8FC\uC138\uC694.';wN.yn\_yes\_text='\uC608';wN.yn\_no\_text='\uC544\uB2C8\uC694';wN.yn\_nps\_text0='\uC804\uD600 \uBD88\uAC00\uB2A5';wN.yn\_nps\_text10='\uB9E4\uC6B0 \uAC00\uB2A5';wN.yn\_placeholder\_text='\uC124\uBA85';wN.yn\_disclaimer\_body\_text='\uD53C\uB4DC\uBC31\uC744 \uC8FC\uC154\uC11C \uAC10\uC0AC\uD569\uB2C8\uB2E4. \uD68C\uC2E0\uC744 \uB4DC\uB9AC\uAC70\uB098 \uC81C\uD488 \uC9C0\uC6D0\uC740 \uC81C\uACF5\uD574 \uB4DC\uB9B4 \uC218 \uC5C6\uC73C\uB2C8 \uC591\uD574 \uBD80\uD0C1\uB4DC\uB9BD\uB2C8\uB2E4. \uC751\uB2F5\uC774 \uD544\uC694 \uD558\uC2DC\uBA74';wN.yn\_disclaimer\_link\_text='\uC9C0\uC6D0\uD300\uC5D0 \uBB38\uC758 \uBC14\uB78D\uB2C8\uB2E4.';wN.yn\_submit\_text='\uC804\uC1A1';wN.yn\_alert\_text='\uC9C8\uBB38\uC5D0 \uB2F5\uD574 \uC8FC\uC2ED\uC2DC\uC624.';wN.yn\_success\_text='\uBCF8 \uC124\uBB38 \uC870\uC0AC\uC5D0 \uC751\uD574 \uC8FC\uC154\uC11C \uAC10\uC0AC\uD569\uB2C8\u

uB2E4.';wN.yn\_lang='ko-KR';wN.yn\_contact\_url='https://www.intel.co.kr/content/www/kr/ko/support/contact-intel.com';}if(onsKey==10){wN.yn\_feedback\_text='Give Feedback';wN.yn\_question\_text='Did you find this information useful?';wN.yn\_question\_text2='How likely is it that you would recommend Intel to a friend or colleague?';wN.yn\_yes\_text='Yes';wN.yn\_no\_text='No';wN.yn\_nps\_text0='Not at All Likely';wN.yn\_nps\_text10='Extremely Likely';wN.yn\_placeholder\_text='Comments:';wN.yn\_disclaimer\_body\_text='We appreciate all feedback, but cannot reply or give product support. If you require a response, ';wN.yn\_disclaimer\_link\_text='contact support.';wN.yn\_submit\_text='Send';wN.yn\_alert\_text='Please provide an answer to the question(s).';wN.yn\_success\_text='Thank you for your participation!';wN.yn\_lang='en-XA';wN.yn\_contact\_url='https://www.intel.sg/content/www/xa/en/support/contact-intel.com';}if(onsKey==11){wN.yn\_feedback\_text='Give Feedback';wN.yn\_question\_text='Did you find this information useful?';wN.yn\_question\_text2='How likely is it that you would recommend Intel to a friend or colleague?';wN.yn\_yes\_text='Yes';wN.yn\_no\_text='No';wN.yn\_nps\_text0='Not at All Likely';wN.yn\_nps\_text10='Extremely Likely';wN.yn\_placeholder\_text='Comments:';wN.yn\_disclaimer\_body\_text='We appreciate all feedback, but cannot reply or give product support. If you require a response, ';wN.yn\_disclaimer\_link\_text='contact support.';wN.yn\_submit\_text='Send';wN.yn\_alert\_text='Please provide an answer to the question(s).';wN.yn\_success\_text='Thank you for your participation!';wN.yn\_lang='en-UK';wN.yn\_contact\_url='https://www.intel.co.uk/content/www/uk/en/support/contact-intel.com';}if(onsKey==12){wN.yn\_feedback\_text='Dejar comentario';wN.yn\_question\_text='\u00BFLe pareci\u00F3 \u00FAtil esta informaci\u00F3n?';wN.yn\_question\_text2='\u00BFCu\u00E9n probable es que recomiende a Intel a un amigo o colega?';wN.yn\_question\_text3='Por favor, d\u00E9ganos c\u00F3mo podemos mejorar la experiencia para satisfacer mejor sus necesidades.';wN.yn\_yes\_text='S\u00ED';wN.yn\_no\_text='No';wN.yn\_nps\_text0='Nada probable';wN.yn\_nps\_text10='Sumamente probable';wN.yn\_placeholder\_text='Comentarios:';wN.yn\_disclaimer\_body\_text='Agradecemos todos los comentarios, pero no podemos responder o proporcionar asistencia para productos. Si necesita una respuesta, ';wN.yn\_disclaimer\_link\_text='p\u00F3ngase en contacto con el servicio de asistencia.';wN.yn\_submit\_text='Enviar';wN.yn\_alert\_text='Proporcione una respuesta a la(s) pregunta(s).';wN.yn\_success\_text='Le agradecemos por haber dedicado su tiempo a completar esta encuesta.';wN.yn\_lang='es-XL';wN.yn\_contact\_url='https://www.intel.la/content/www/xl/es/support/contact-intel.com';}if(onsKey==13){wN.yn\_feedback\_text='Fornisci il tuo feedback';wN.yn\_question\_text='Queste informazioni sono state utili?';wN.yn\_question\_text2='Con che probabilit\u00E0 consiglieresti Intel a un amico o a un collega?';wN.yn\_question\_text3='Potresti dirci come possiamo migliorare l'esperienza per soddisfare meglio le tue esigenze?';wN.yn\_yes\_text='S\u00EC';wN.yn\_no\_text='No';wN.yn\_nps\_text0='Estremamente improbabile';wN.yn\_nps\_text10='Estremamente probabile';wN.yn\_placeholder\_text='Commenti:';wN.yn\_disclaimer\_body\_text='Apprezziamo ogni tipo di feedback, ma non possiamo rispondere o fornire supporto sui prodotti. Se hai bisogno di una risposta, ';wN.yn\_disclaimer\_link\_text='contatta il

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u0E2D\u0E43\u0E2B\u0E49\u0E01\u0E32\u0E23\u0E2A\u0E19\u0E31\u0E1A\u0E2A\u0E19\u0E38\u0E19\u0E14\u0E49\u0E32\u0E19\u0E1C\u0E25\u0E34\u0E15\u0E20\u0E31\u0E13\u0E11\u0E4C\u0E44\u0E14\u0E49 \u0E16\u0E49\u0E32\u0E04\u0E38\u0E13\u0E15\u0E49\u0E2D\u0E07\u0E01\u0E32\u0E23\u0E04\u0E33\u0E15\u0E2D\u0E1A';wN.yn\_disclaimer\_link\_text='\u0E01\u0E23\u0E38\u0E13\u0E32\u0E15\u0E34\u0E14\u0E15\u0E48\u0E2D\u0E1D\u0E48\u0E32\u0E22\u0E1A\u0E23\u0E34\u0E01\u0E32\u0E23\u0E2A\u0E19\u0E31\u0E1A\u0E2A\u0E19\u0E38\u0E19';wN.yn\_submit\_text='\u0E2A\u0E48\u0E07';wN.yn\_alert\_text='\u0E42\u0E1B\u0E23\u0E14\u0E23\u0E30\u0E1A\u0E38\u0E04\u0E33\u0E15\u0E2D\u0E1A\u0E2A\u0E33\u0E2B\u0E23\u0E31\u0E1A\u0E04\u0E33\u0E16\u0E32\u0E21';wN.yn\_success\_text='\u0E02\u0E2D\u0E1A\u0E04\u0E38\u0E13\u0E17\u0E35\u0E48\u0E2A\u0E25\u0E30\u0E40\u0E27\u0E25\u0E32\u0E17\u0E33\u0E41\u0E1A\u0E1A\u0E2A\u0E2D\u0E1A\u0E16\u0E32\u0E21\u0E19\u0E35\u0E49';wN.yn\_lang='th-TH';wN.yn\_contact\_url='https://www.thailand.intel.com/content/www/th/th/support/contact-intel.com';}if(onsKey==16){wN.yn\_feedback\_text='\u00DD Ki\u1EBFn Ph\u1EA3n H\u1ED3i';wN.yn\_question\_text='B\u1EA1n c\u00F3 th\u1EA5y th\u00F4ng tin n\u00E0y h\u1EEFu d\u1EE5ng kh\u00F4ng?';wN.yn\_question\_text2='How likely is it that you would recommend Intel to a friend or colleague?';wN.yn\_question\_text3='Vui l\u00F2ng cho ch\u00Fang t\u00F4i bi\u1EBFt c\u00E1ch ch\u00Fang t\u00F4i c\u00F3 th\u1EC3 c\u1EA3i thi\u1EC7n tr\u1EA3i nghi\u1EC7m \u0111\u1EC3 \u0111\u00E9p \u1EE9ng t\u1ED1t h\u01A1n nh\u00F9 c\u1EA7u c\u1EE7a b\u1EA1n?';wN.yn\_yes\_text='C\u00F3';wN.yn\_no\_text='Kh\u00F4ng';wN.yn\_nps\_text0='Not at All Likely';wN.yn\_nps\_text10='Extremely Likely';wN.yn\_placeholder\_text='Nh\u1EADn x\u00E9t';wN.yn\_disclaimer\_body\_text='Ch\u00Fang t\u00F4i r\u1EA5t tr\u00E2n tr\u1ECDng m\u1ECDi ph\u1EA3n h\u1ED3i, nh\u01B0ng kh\u00F4ng th\u1EC3 tr\u1EA3 l\u1EDDi ho\u1EB7c h\u1ED7 tr\u1EE3 s\u1EA3n ph\u1EA9m. N\u1EBFu b\u1EA1n c\u1EA7n c\u00F3 c\u00E2u tr\u1EA3 l\u1EDDi ph\u1EA3n h\u1ED3i, ';wN.yn\_disclaimer\_link\_text='xin li\u00EAn h\u1EC7 nh\u00F3m h\u1ED7 tr\u1EE3.';wN.yn\_submit\_text='G\u1EEDi';wN.yn\_alert\_text='Vui l\u00F2ng tr\u1EA3 l\u1EDDi c\u00E1c c\u00E2u h\u1ECFi.';wN.yn\_success\_text='Ca\u0309m \u01A1n ba\u0323n \u0111\u0303a\u0300nh th\u01A1\u0300i gian ho\u0300nh th\u0300nh kh\u1EA3o s\u00E1t.';wN.yn\_lang='vi-VN';wN.yn\_contact\_url='https://www.intel.vn/content/www/vn/vi/support/contact-intel.com';}if(onsKey==17){wN.yn\_feedback\_text='Czekamy na Twój\u0105 opini\u0119';wN.yn\_question\_text='Czy te informacje by\u0142y dla Ciebie za przydatne?';wN.yn\_question\_text2='How likely is it that you would recommend Intel to a friend or colleague?';wN.yn\_question\_text3='Poinformuj nas, jak mo\u017Cemy poprawi\u0107 jako\u015B\u0107 us\u0142ug, aby lepiej spe\u0142nia\u0107 Twoje potrzeby?';wN.yn\_yes\_text='Tak';wN.yn\_no\_text='Nie';wN.yn\_nps\_text0='Not at All Likely';wN.yn\_nps\_text10='Extremely Likely';wN.yn\_placeholder\_text='Komentarze:';wN.yn\_disclaimer\_body\_text='Jest e\u015Bmy wdzi\u0119czni za wszystkie komentarze, ale nie mo\u017Cemy udzieli\u0107 odpowiedzi ani wsparcia produktowego. Je\u015Bli potrzebujesz odpowiedzi, ';wN.yn\_disclaimer\_link\_text='skontaktuj si\u0119 z pomoc\u0105 techniczn\u0105.';wN.yn\_submit\_text='Wy\u015Blij';wN.yn\_alert\_text='Podaj odpowied\u017A na pytania.';wN.yn\_success\_text='Dzi\u0119kujemy za czas po\u015Bwi\u0119cony na wype\u0142nienie tej ankiety.';wN.yn\_lang='pl-PL';wN.yn\_contact\_url='https://www.intel.pl/content/www/pl/pl/support/contact-intel.com';}if(onsKey==18){wN.yn\_feedback\_text='Berikan Umpan Balik';wN.yn\_question\_text='Apakah informasi ini

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berguna?';wN.yn_question_text2='Seberapa besar kemungkinan Anda akan
merekomendasikan Intel kepada teman atau
kolega?';wN.yn_question_text3='Sampaikan bagaimana kami dapat
meningkatkan pengalaman untuk memenuhi kebutuhan Anda dengan lebih
baik?';wN.yn_yes_text='Ya';wN.yn_no_text='Tidak';wN.yn_nps_text0='Tidak
Sama sekali';wN.yn_nps_text10='Sangat
Mungkin';wN.yn_placeholder_text='Komentar:';wN.yn_disclaimer_body_text='Ka
mi menghargai semua umpan balik, tapi tidak dapat membalas atau
memberikan dukungan produk. Jika Anda membutuhkan tanggapan,
';wN.yn_disclaimer_link_text='hubungi
dukungan.';wN.yn_submit_text='Kirim';wN.yn_alert_text='Silakan berikan
jawaban untuk pertanyaan.';wN.yn_success_text='Terima kasih atas partisipasi
Anda!';wN.yn_lang='id-ID';wN.yn_contact_url='https://www.intel.co.id/content/
www/id/id/support/contact-intel.com';};if(onsKey==19)
{wN.yn_feedback_text='Donnez votre avis';wN.yn_question_text='Ces
informations vous ont-elles \u00E9t\u00E9 utiles?';wN.yn_question_text2='Dans
quelle mesure seriez-vous susceptible de recommander Intel \u00E0 un ami ou
coll\u00E8gue ?';wN.yn_question_text3='Dites-nous comment nous pouvons am\u
\u00E9liorer votre exp\u00E9rience afin de mieux r\u00E9pondre \u00E0 vos
besoins ?';wN.yn_yes_text='Oui';wN.yn_no_text='Non';wN.yn_nps_text0='Pas du
tout probable';wN.yn_nps_text10='Hautement
probable';wN.yn_placeholder_text='Commentaires\
\u00A0';wN.yn_disclaimer_body_text='Nous vous remercions pour vos
commentaires. N\u00E9anmoins, nous ne pouvons pas vous r\u00E9pondre, ni
fournir d'assistance produits. Si vous avez besoin d'une r\u00E9ponse,
';wN.yn_disclaimer_link_text='contactez
l'assistance.';wN.yn_submit_text='Envoyer';wN.yn_alert_text='Veuillez fournir
une r\u00E9ponse \u00E0 la ou aux questions.';wN.yn_success_text='Merci de
votre
participation!';wN.yn_lang='fr-CA';wN.yn_contact_url='https://www.intel.ca/
content/www/ca/fr/support/contact-intel.com';};if(onsKey==20)
{wN.yn_feedback_text='Give Feedback';wN.yn_question_text='Did you find this
information useful?';wN.yn_question_text2='How likely is it that you would
recommend Intel to a friend or colleague?';wN.yn_question_text3='Please tell us
how we can improve the experience to better meet your
needs?';wN.yn_yes_text='Yes';wN.yn_no_text='No';wN.yn_nps_text0='Not at All
Likely';wN.yn_nps_text10='Extremely
Likely';wN.yn_placeholder_text='Comments:';wN.yn_disclaimer_body_text='We
appreciate all feedback, but cannot reply or give product support. If you require
a response, ';wN.yn_disclaimer_link_text='contact
support.';wN.yn_submit_text='Send';wN.yn_alert_text='Please provide an answer
to the question(s)';wN.yn_success_text='Thank you for your
participation!';wN.yn_lang='en-CA';wN.yn_contact_url='https://www.intel.ca/
content/www/ca/en/support/contact-intel.com';};if(onsKey==21)
{wN.yn_feedback_text='\u05D4\u05E2\u05E0\u05E7 \u05DE\u05E9\u05D5\
\u05D1';wN.yn_question_text='\u05D4\u05D0\u05DD \u05DE\u05D9\u05D3\
\u05E2 \u05D6\u05D4 \u05E9\u05D9\u05DE\u05D5\u05E9\u05D9 \u05DC\u05D3\
\u05E2\u05EA\u05DA?';wN.yn_question_text2='How likely is it that you would
recommend Intel to a friend or colleague?';wN.yn_question_text3='\u05E1\
\u05E4\u05E8 \u05DC\u05E0\u05D5 \u05DB\u05D9\u05E6\u05D3 \u05E0\u05D5\
\u05DB\u05DC \u05DC\u05E9\u05E4\u05E8 \u05D0\u05EA \u05D4\u05D7\u05D5\
\u05D5\u05D9\u05D4 \u05DB\u05D3\u05D9 \u05DC\u05E2\u05E0\u05D5\u05EA \
\u05D8\u05D5\u05D1 \u05D9\u05D5\u05EA\u05E8 \u05E2\u05DC \u05D4\u05E6\
\u05E8\u05DB\u05D9\u05DD \u05E9\u05DC\u05DA?';wN.yn_yes_text='\u05DB\

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u05DF';wN.yn\_no\_text='\u05DC\u05D0';wN.yn\_nps\_text0='Not at All Likely';wN.yn\_nps\_text10='Extremely Likely';wN.yn\_placeholder\_text='\u05D4\u05E2\u05E8\u05D5\u05EA';wN.yn\_disclaimer\_body\_text='\u05D0\u05E0\u05D5\u05DE\u05E2\u05E8\u05D9\u05DB\u05D9\u05DD \u05DB\u05DC \u05DE\u05E9\u05D5\u05D1, \u05D0\u05DA \u05D0\u05D9\u05E0\u05E0\u05D5 \u05D9\u05DB\u05D5\u05DC\u05D9\u05DD \u05DC\u05D4\u05E9\u05D9\u05D1 \u05D0\u05D5 \u05DC\u05D4\u05E2\u05E0\u05D9\u05E7 \u05EA\u05DE\u05D9\u05DB\u05D4 \u05D1\u05DE\u05D5\u05E6\u05E8. \u05D0\u05DD \u05D0\u05EA\u05D4\u05D6\u05E7\u05D5\u05E7 \u05DC\u05EA\u05D2\u05D5\u05D1\u05D4, ';wN.yn\_disclaimer\_link\_text='\u05E6\u05D5\u05E8 \u05E7\u05E9\u05E8 \u05E2\u05DD \u05D4\u05EA\u05DE\u05D9\u05DB\u05D4.';wN.yn\_submit\_text='\u05E9\u05DC\u05D7';wN.yn\_alert\_text='\u05E0\u05D0 \u05DC\u05E2\u05E0\u05D5\u05EA \u05E2\u05DC \u05D4\u05E9\u05D0\u05DC\u05D5\u05EA.';wN.yn\_success\_text='\u05EA\u05D5\u05D3\u05D4 \u05E2\u05DC \u05D4\u05E9\u05EA\u05EA\u05E4\u05D5\u05EA\u05DA!';wN.yn\_lang='he-IL';wN.yn\_contact\_url='https://www.intel.co.il/content/www/us/en/support/contact-intel.com';};if(onsKey==22){wN.yn\_feedback\_text='Give Feedback';wN.yn\_question\_text='Did you find this information useful?';wN.yn\_question\_text2='How likely is it that you would recommend Intel to a friend or colleague?';wN.yn\_question\_text3='Please tell us how we can improve the experience to better meet your needs?';wN.yn\_yes\_text='Yes';wN.yn\_no\_text='No';wN.yn\_nps\_text0='Not at All Likely';wN.yn\_nps\_text10='Extremely Likely';wN.yn\_placeholder\_text='Comments:';wN.yn\_disclaimer\_body\_text='We appreciate all feedback, but cannot reply or give product support. If you require a response, ';wN.yn\_disclaimer\_link\_text='contact support.';wN.yn\_submit\_text='Send';wN.yn\_alert\_text='Please provide an answer to the question(s).';wN.yn\_success\_text='Thank you for your participation!';wN.yn\_lang='en-AU';wN.yn\_contact\_url='https://www.intel.com.au/content/www/au/en/support/contact-intel.com';};if(onsKey==23){wN.yn\_feedback\_text='Give Feedback';wN.yn\_question\_text='Did you find this information useful?';wN.yn\_question\_text2='How likely is it that you would recommend Intel to a friend or colleague?';wN.yn\_question\_text3='Please tell us how we can improve the experience to better meet your needs?';wN.yn\_yes\_text='Yes';wN.yn\_no\_text='No';wN.yn\_nps\_text0='Not at All Likely';wN.yn\_nps\_text10='Extremely Likely';wN.yn\_placeholder\_text='Comments:';wN.yn\_disclaimer\_body\_text='We appreciate all feedback, but cannot reply or give product support. If you require a response, ';wN.yn\_disclaimer\_link\_text='contact support.';wN.yn\_submit\_text='Send';wN.yn\_alert\_text='Please provide an answer to the question(s).';wN.yn\_success\_text='Thank you for your participation!';wN.yn\_lang='en-IN';wN.yn\_contact\_url='https://www.intel.in/content/www/in/en/support/contact-intel.com';};function ONS\_embedMyIntelStyle(){var sObj=dD.createElement('STYLE');sObj.innerHTML='.OnR-input input{position:absolute;opacity:0;cursor:pointer;height:0;width:0;}.OnR-checkmark{top:0;left:0;height:1.1em;width:1.1em;background-color:#fff;border-radius:50%;border:solid 2px #1f6af2;margin-top:0.4em;}.OnR-input input:checked ~ .OnR-checkmark{background-color:#2196F3;box-shadow: 0 0 4pt 2px #8eb4f8;}.OnR-checkmark:after{content:"";position:relative;display:none;}.OnR-input .OnR-checkmark:after{top:9px;left:9px;width:8px;height:8px;border-radius:50%;background:white;}#yesno-widget input:hover ~ label{background-color: #0083d7 !important;}#yesno-widget input:checked ~ label{background-

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color: #0083d7 !important;}#yesno-widget ::placeholder { color: #9a9a9a;
opacity: 1; }#yesno-widget :-ms-input-placeholder{ color: #9a9a9a; }#yesno-
widget ::-ms-input-placeholder{ color: #9a9a9a;}@media only screen and (max-
width:420px){#yesno-widget h2{font-weight: bold!important;}#yesno-
error{width: 92%!important;margin: 0 auto!important;margin-bottom:10px!
important;}#btn-close{font-weight: normal!important;}#btn-send{font-weight:
bold!important;width:95%!important;height: 40px !important;}#rating-1-
block,#rating-2-block,#rating-3-block,#rating-4-block,#rating-5-
block{width:20%!important;margin-right:0!important;height:80px!
important;}#rating-1-block label,#rating-2-block label,#rating-3-block
label,#rating-4-block label,#rating-5-block label{width:90%!important;margin-
right:0!important;height:80px!important;}#yesno-widget{background: #fff!
important;right:0!important;left:0!important;padding-right:0!important;padding-
left:0!important;width:100%!important;top:0!important;bottom:0!
important;}#yesno-comment{max-width:98%!important;width:98%!
important;min-height:100px!important;max-height:100px!important;}#yesno-1-
block,yesno-2-block{width:47%!important;}#yesno-1-block label,#yesno-2-block
label{height: 40px!important;padding-top: 4px!important;}#yesno-1-block label
span,#yesno-2-block label span{font-weight: bold!important;}#rating-1-block
label p,#rating-2-block label p,#rating-3-block label p,#rating-4-block label
p,#rating-5-block label p{white-space: normal; word-break: break-all;font-
weight: bold!important;}@media only screen and (max-width:320px){#rating-
1-block label p,#rating-2-block label p,#rating-3-block label p,#rating-4-block
label p,#rating-5-block label p{font-weight: normal!important;}#rating-1-block
label p.yn-bold,#rating-2-block label p.yn-bold,#rating-3-block label p.yn-
bold,#rating-4-block label p.yn-bold,#rating-5-block label p.yn-bold{font-weight:
bold!important;}}.landscape #yesno-widget{display: block;position !important:
absolute;bottom: AUTO !important;right: 0 !important;left: 0 !
important;background-color: #fff !important;width: 100% !important;height:
100VH !important;padding-right: 0 !important;padding-left: 0 !
important;padding-bottom: 0 !important;top: 0 !important; OVERFLOW: AUTO !
important;}.landscape #yesno-comment{width: 100% !
important;}.landscape .btnformcontainer {text-align: center !
important;}.landscape #yesno-1-block,.landscape #yesno-2-block,.landscape
#yesno-3-block{height: 40px !important;}.landscape #yesno-1-block
label,.landscape #yesno-2-block label,.landscape #yesno-3-block label{height:
38px !important;}.landscape #yesno-1-block span,.landscape #yesno-2-block
span,.landscape #yesno-3-block span{line-height: 38px !
important;}.landscape .selectdropdown {padding: 8px !important;}.landscape
#btn-send{width: 200px !important ;height: 40px !important;}.landscape
div#yesno-error {margin-top: 7px !important;width: 96% !important;margin: 0
auto;}.landscape div#yesno-widget-content{padding-bottom: 60px !
important;}.landscape #btn-widget{bottom: -74px;right: 48px !important;width:
40px !important;height: 188px;transform: rotate(-90deg) !important;-webkit-
transform: rotate(-90deg) !important;-webkit-transform: rotate(-90deg) !
important;-moz-transform: rotate(-90deg) !important;-o-transform: rotate(-
90deg) !important;-ms-transform: rotate(-90deg) !important;}.landscape #btn-
widget img{padding-right: 7px !important;transform: rotate(-90deg) !important;-
webkit-transform: rotate(-90deg) !important;-webkit-transform: rotate(-90deg) !
important;-moz-transform: rotate(-90deg) !important;-o-transform: rotate(-
90deg) !important;-ms-transform: rotate(-90deg) !important;}#btn-widget
{right: 48px !important;width: 40px !important;height: 188px;transform: rotate(-
90deg) !important;-webkit-transform: rotate(-90deg) !important;-webkit-
transform: rotate(-90deg) !important;-moz-transform: rotate(-90deg) !important;-

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o-transform: rotate(-90deg) !important;-ms-transform: rotate(-90deg) !
important;bottom: -74px;}#btn-widget img {width: 44px !important;padding-
right: 7px !important;transform: rotate(-90deg) !important;-webkit-transform:
rotate(-90deg) !important;-webkit-transform: rotate(-90deg) !important;-moz-
transform: rotate(-90deg) !important;-o-transform: rotate(-90deg) !important;-
ms-transform: rotate(-90deg) !important;}*::-ms-backdrop, #btn-widget { right:
60px !important;}@media only screen and (max-width:420px){#yesno-
widget{overflow-x: auto !important;}.selectdropdown {font-weight:
normal;height: 36px;}#yesno-1-block, #yesno-2-block {width: 47%!important}
#yesno-3-block {width: 96%!important}.btnformcontainer {text-align: center !
important;margin-bottom: 25px !important;} }@media only screen and (max-
width:420px){#btn-widget{bottom: -74px;right: 48px !important;width: 40px !
important;height: 188px ;transform: rotate(-90deg) !important;-webkit-
transform: rotate(-90deg) !important;-webkit-transform: rotate(-90deg) !
important;-moz-transform: rotate(-90deg) !important;-o-transform: rotate(-
90deg) !important;-ms-transform: rotate(-90deg) !important;}#btn-widget
img{padding-right: 7px !important;transform: rotate(-90deg) !important;-webkit-
transform: rotate(-90deg) !important;-webkit-transform: rotate(-90deg) !
important;-moz-transform: rotate(-90deg) !important;-o-transform: rotate(-
90deg) !important;-ms-transform: rotate(-90deg) !important;}*::-ms-backdrop,
#btn-widget { right: 60px !important;}}';dD.body.appendChild(sObj);}function
ONS_detectViewPort(){var bodyObj = document.body;if(window.innerWidth <
768){if(window.innerHeight < window.innerWidth)
{bodyObj.classList.add('landscape');}else{bodyObj.classList.remove('landscape')
}}else{bodyObj.classList.remove('landscape')}}window.addEventListener("resiz
e", ONS_detectViewPort);function ONS_showMyIntelWidget()
{if(dD.getElementsByClassName('idz-survey').length==0&&!
dD.getElementById('feedback-1')&&!
dD.getElementById('feedbackToolContainer'))
{ONS_embedMyIntelStyle();if(ONS_gCookie(cn+'STG')==='16')ONS_sCookie(cn+'S
TG','32',cdv,ch);var ynObtn=dD.createElement('DIV');ynObtn.onclick=function()
{ONS_detectViewPort();dD.getElementById('yesno-
widget').style.display='block';this.style.display='none';};ynObtn.id='btn-
widget';ynObtn.className='geo-0';var shtml="";shtml='<div class="inBtn"
style="width:50px;height:185px;padding-top:9px;padding-left:9px;padding-
right:7px;margin:0;color:'+yn_header_text_color_css+';background-
color:'+yn_header_background_color_css+';font-
family:'+yn_text_family_css+';font-size:16px;line-height:1;font-
weight:200;">';shtml+='';shtml+='<span style="display:block;position:absolute;top:100px;left:-50px!
important;right:auto!important;height:auto;width:auto;min-width:150px;text-
align:center;margin:0;padding:0;color:'+yn_header_text_color_css+';font-
family:'+yn_text_family_css+';font-size:16px;line-height:1;font-
weight:normal;transform:rotate(90deg);-webkit-transform:rotate(90deg);-webkit-
transform:rotate(90deg);-moz-transform:rotate(90deg);-o-transform:
rotate(90deg);-ms-transform:rotate(90deg);">'+yn_feedback_text+'</span></
div>';ynObtn.innerHTML=shtml;var
ynObj=dD.createElement('DIV');ynObj.id='yesno-
widget';ynObj.className='widget-geo-0';shtml='<div
style="height:3.3em;padding-top:0;padding-right:.75em;padding-
bottom:0;padding-
left:.75em;margin:0;color:'+yn_header_text_color_css+';background-
color:'+yn_header_background_color_css+';font-

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family:'+yn_text_family_css+';font-size:14px;line-height:1;font-
weight:200;">';shtml+='';shtml+='<span
style="cursor:pointer;display:inline-block;vertical-align:middle;margin-
top:.75em;margin-bottom:0;padding:0;color:'+yn_header_text_color_css+';font-
family:'+yn_text_family_css+';font-size:16px;line-height:1;font-weight:normal;"
onclick="ONS_minMyIntelWidget();">'+yn_feedback_text+'</span>';shtml+='<
button id="btn-close" type="button" style="display:inline-block;vertical-
align:middle;float:right;margin-top:.25em;margin-
bottom:0;padding:.3125em;cursor:pointer;background-color:transparent;border-
color:transparent;color:'+yn_header_text_color_css+';font-
family:'+yn_text_family_css+';font-size:21px;line-height:1;font-weight:200;"
onclick="ONS_closeMyIntelWidget();">X</button></div>';shtml+='<div
id="yesno-widget-content" style="padding:.73em;background-
color:'+yn_body_background_color_css+';border-left:solid 1px
#D7D7D7;color:'+yn_body_text_color_css+';">';shtml+='<div id="yesno-
widget-Q1-border"><p id="yesno-widget-Q1" style="padding:0;margin-
top:0;margin-bottom:0;text-align:left;color:'+yn_body_text_color_css+';font-
family:'+yn_text_family_css+';font-size:14px;line-height:1.25;font-
weight:bold;">'+yn_question_text+'</p>';shtml+='<div style="margin-
top:.5em;padding-left:0;margin-bottom:.5em;text-align:left;">';shtml+='<div
style="display:flex;justify-content:center;margin-top:1em;margin-
bottom:1.3em;">';shtml+='<label class="OnR-input" for="yesno-1"
style="display:flex;align-items:center;flex-flow:column;width:18%;font-
weight:normal;font-size:14px;cursor:pointer;"
onclick="ONS_cleanErrorMsg();">'+yn_yes_text+'<br /><input style="margin: 0
0.5em;" type="radio" id="yesno-1" name="yesno-yes-no" value="1" /><span
class="OnR-checkmark"></span></label>';shtml+='<label class="OnR-input"
for="yesno-2" style="display:flex;align-items:center;flex-
flow:column;width:18%;font-weight:normal;font-size:14px;cursor:pointer;"
onclick="ONS_cleanErrorMsg();">'+yn_no_text+'<br /><input style="margin: 0
0.3em;" type="radio" id="yesno-2" name="yesno-yes-no" value="2" /><span
class="OnR-checkmark"></span></label>';shtml+='</div></div></div>';shtml
l+='<p style="padding:0;margin-top:0;margin-bottom:0;text-
align:left;color:'+yn_body_text_color_css+';font-
family:'+yn_text_family_css+';font-size:14px;line-height:1.25;font-
weight:bold;">'+yn_question_text3+'</p>';shtml+='<div id="yesno-comment-
block" style="margin-bottom:1em;"><textarea id="yesno-comment"
name="yesno-comment" rows="3" maxLength="'+yn_onML[onsKey]+'""
placeholder="'+yn_placeholder_text+'""
onkeyup="ONS_countMyIntelWidget(this);" autocomplete="off"
style="resize:none;display:block;width:360px;min-width:260px!
important;width:360px;height:80px;min-height:80px;max-
height:80px;overflow:hidden;margin:0;padding:.5em;background-
color:#F3F3F3;border:1px solid
#F3F3F3;outline:none;color:'+yn_body_text_color_css+';font-
family:'+yn_text_family_css+';font-size:14px;line-height:1.25;font-
weight:normal;margin-top: 12px;"></textarea><p style="padding:0;margin-
top:0;margin-bottom:1em;color:#9c9c9c;font-family:'+yn_text_family_css+';font-
size:10px;line-height:1.2;font-weight:normal;padding-top:5px">(<span
id="yesno-comment-count">0</span>/' +yn_onML[onsKey]+'</p></div><div
id="yesno-error" style="margin-top:-8px;color:#721c24;background-

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color:#f8d7da;border: 1px solid #f5c6cb;font-size:12px;border-radius:
3px;display: none;padding: 5px;margin-bottom: 8px;font-
family:'+yn_text_family_css+'>'+yn_alert_text+'</div>';shtml+='<div
style="text-align:center;"><button type="button" id="btn-send"
onclick="ONS_submitMyIntelWidget();" style="display:inline-
block;width:125px;height:31px;margin-top:0;margin-
bottom:0;padding:0;border:none;border-radius:3px;cursor:pointer;background-
color:#0071C5;color:'+yn_header_text_color_css+';font-
family:'+yn_text_family_css+';font-size:14px;line-height:1;font-
weight:normal;text-align:center;text-
transform:capitalize;">'+yn_submit_text+'</button></div>';shtml+='<p
style="padding:0;margin-top:1em;margin-bottom:0;color:#BBBBBB;font-
family:'+yn_text_family_css+';font-size:12px;line-height:1.25;font-
weight:normal;">'+yn_disclaimer_body_text+'<a href="'+yn_contact_url+'"'
style="text-decoration:none;color:'+yn_body_link_color_css+';font-
family:'+yn_text_family_css+';font-size:12px;line-height:1.25;font-
weight:normal;">'+yn_disclaimer_link_text+'</a></p></
div>';ynObj.innerHTML=shtml;if(document.getElementsByClassName('avaamo__
chat__widget').length==0){ynObj.style.cssText='display:none;position:fixed;z-
index:9998;bottom:15px;left:15px;background-
color:'+yn_shadow_color_css+';width:400px;height:auto;margin:0;padding-
right:.5em;padding-
bottom:.5em;';ynObtn.style.cssText='display:block;position:fixed;z-
index:9998;bottom:-60px !important;left:85px !
important;width:50px;height:185px;padding-right:.5em;padding-
bottom:.5em;background-
color:'+yn_shadow_color_css+';cursor:pointer;';dD.body.appendChild(ynObj);dD.
body.appendChild(ynObtn);}else{ynObj.style.cssText='display:none;position:fixe
d;z-index:9998;bottom:15px;left:15px;background-
color:'+yn_shadow_color_css+';width:400px;height:auto;margin:0;padding-
right:.5em;padding-bottom:.5em;';ynObtn.style.cssText='display:inline-
block;position:absolute;z-index:9998;background-color:' + yn_shadow_color_css
+ ';cursor:pointer;top:-7.15em;left:6em !
important;';dD.body.appendChild(ynObj);dD.getElementsByTagName('footer')
[0].appendChild(ynObtn);}}function ONS_submitMyIntelWidget(){var
radiosYN=dD.getElementsByName('yesno-yes-no');var YNValid=false;var
ratingYN=dD.getElementsByName('rating');var ratingValid=false;var i= 0;while(!
YNValid&&i<radiosYN.length){if (radiosYN[i].checked){var
yesnoAnswer=radiosYN[i].value;YNValid=true;};i++;}var
yesnoComment=dD.getElementById('yesno-
comment').value;dD.getElementById('yesno-widget-
Q1').style.color='#555555';dD.getElementById('yesno-widget-Q1-
border').style.border='0px';if(!YNValid){dD.getElementById('yesno-
error').style.display='block';if(!YNValid){dD.getElementById('yesno-widget-
Q1').style.color='red';dD.getElementById('yesno-widget-Q1-
border').style.border='solid 3px red';}}else{var sid=onsUSID||
ONS_gCookie(cn+'SID');var uid=onsUUID||ONS_gCookie(cn+'UID');var
yn_qs_answers='?
sid='+sid+'&uid='+uid+'&onYesNo='+yesnoAnswer+'&onComment='+encodeU
RIComponent(yesnoComment)+'&onLang='+encodeURIComponent(yn_lang)
+'&onCurl='+encodeURIComponent(dD.location.href)
+'&ss='+wN.screen.width+'x'+wN.screen.height;var
yn_send_url=yn_api_url+yn_qs_answers;ONS_sendXDR(yn_send_url);dD.getElem
entById('yesno-widget-content').innerHTML='<div style="padding:10px;text-

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align:center;height:300px;margin-top:40px;"><img
src="" + yn_load_uri + ""></div>';setTimeout(function()
{ONS_successSend();},1000);}}function ONS_successSend()
{dD.getElementByld('yesno-widget-content').innerHTML='<div
style="padding:10px;height:300px;font-family:'+yn_text_family_css+';text-align:
center;"><div style="color:#155724;background-color:#d4edda;border-
color:#c3e6cb;padding:10px;font-size:12px;">'+yn_success_text+'</div></
div>';setTimeout(function()
{ONS_closeMyIntelWidget();},5000);ONS_collectDataLake();}function
ONS_sendXDR(urlQ){var ynXdr=null;var ynXhr=null;if(typeof XMLHttpRequest!
='undefined'){try{ynXdr=new XMLHttpRequest();}catch(e){ynXdr=null;}}else
if(wN.XMLHttpRequest){try{ynXhr=new XMLHttpRequest();if(!'withCredentials'
in ynXhr)ynXhr=null;}catch(e){ynXhr=null;}}if(ynXhr)
{ynXhr.onreadystatechange=function()
{};ynXhr.open('GET',urlQ,true);ynXhr.send();}else if(ynXdr)
{ynXdr.open('GET',urlQ);ynXdr.onprogress=function()
{};ynXdr.ontimeout=function(){};ynXdr.onerror=function()
{};ynXdr.onload=function(){};setTimeout(function()
{ynXdr.send();},0);}}function ONS_minMyIntelWidget()
{dD.getElementByld('yesno-
widget').style.display='none';dD.getElementByld('btn-
widget').style.display='block';}function ONS_closeMyIntelWidget()
{dD.getElementByld('yesno-widget').style.display='none';}function
ONS_cleanErrorMsg(){dD.getElementByld('yesno-
error').style.display='none';}function ONS_countMyIntelWidget(o)
{if(o.value.length>yn_onML[onsKey])o.value=o.value.substring(yn_onML[onsKey
]);var remaining=o.value.length;dD.getElementByld('yesno-comment-
count').innerHTML=remaining;}onsUSID='8056886452209M1659397249170';on
sUUID=ONS_gCookie(cn+'UID');if(onsUUID=="")
{ONS_sCookie(cn+'UID','8056886452209M1659397249170',365,ch);onsUUID='8
056886452209M1659397249170';}ONS_sCookie(cn+'SID',onsUSID,cdv,ch);if(ON
S_gCookie(cn+'STG')==")
{ONS_sCookie(cn+'STG','30',onsCookieExp,ch);}if((ONS_gCookie('inteliqresearch
')==1||ONS_gCookie('inteliqresearch2')==1)){ONS_launchYNInvite();}function
ONS_CoreSite()
{}setTimeout('ONS_initCore(true)',1000);setTimeout('ONS_showMyIntelWidget()',
5000);</script></body></html>
<html class="rwd geo-override vis no-rtl headerfooter-menu3 js flexbox
flexboxlegacy canvas canvastext webgl touch geolocation postmessage no-
websqldatabase indexeddb hashchange history draganddrop websockets rgba
hsla multiplebgs backgroundsize borderimage borderradius boxshadow
textshadow opacity cssanimations csscolumns cssgradients cssreflections
csstransforms csstransforms3d csstransitions fontface generatedcontent video
audio localstorage sessionstorage webworkers applicationcache svg inlinesvg
smil svgclippaths overthrow-enabled mobile iphone smallscreen ios ios15_6
ios15 safari safari15 webkit no-desktop portrait no-ipad no-ipod appleios"
lang="en" style="opacity: 1;"><head class="at-element-marker">
<meta charset="UTF-8">

```

### <title>3.5. Accessing Remote System Upgrade through User Logic</title>

```
<link rel="preconnect" href="//dpm.demdex.net/" crossorigin="">
<link rel="dns-prefetch" href="//dpm.demdex.net/">
<link rel="preconnect" href="//starget.intel.com/">
<link rel="dns-prefetch" href="//starget.intel.com/">
<link rel="preconnect" href="//elqtrk.intel.com/">
<link rel="dns-prefetch" href="//elqtrk.intel.com/">
<link rel="dns-prefetch" href="//onsite2.researchintel.com/">
<link rel="preconnect" href="//tags.tiqcdn.com/" crossorigin="">
<link rel="dns-prefetch" href="//tags.tiqcdn.com/">
<link rel="preconnect" href="//www91.intel.com/">
<link rel="dns-prefetch" href="//www91.intel.com/">
```

```
    <link rel="preload" href="/content/dam/www/global/wap/performance-
config.js" as="script" type="text/javascript">
    <script src="//tms-global.intel.com/profile-cq.asmo-na/prod/utag.js"
type="text/javascript" async=""></script><script type="text/javascript"
src="/content/dam/www/global/wap/performance-config.js"></script>
    <link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/global/
targetDataCookie.min.js" as="script" type="text/javascript">
    <script src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/global/
targetDataCookie.min.js"></script>
```

```
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
nav.min.css" as="style" type="text/css">
```

```
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intelone-display-regular.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intelone-display-medium.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intel-clear-latin.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
```

```
resources/intel-clear-latin-bold.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intel-clear-latin-italic.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intelone-display-bold.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intelone-display-light.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/site-
global-icons/resources/font/site-global-icons.woff2?16701488" as="font"
type="font/woff2" crossorigin="true">
```

```
<meta http-equiv="X-UA-Compatible" content="IE=Edge">
<!--[if lte IE 9]>
<meta http-equiv="X-UA-Compatible" content="IE=9"/>
<![endif]-->
```

```
<meta name="twitter:card" content="summary">
```

```
<meta name="keywords" content="">
```

```
<meta name="item_id"
content="/content/www/us/en/docs/programmable/683865/current/accessing-
remote-system-upgrade-through">
```

```
<meta name="description" content="">
```

```
<meta name="language" content="en">
```

```
<meta name="book_id" content="683865">
```



<meta name="twitter:image"  
content="https://www.intel.com/content/dam/logos/logo-energyblue-1x1.png">

<meta name="partnum" content="UG-M10CONFIG">

<meta name="parent\_id" content="666495">

<meta name="revision\_date" content="5/26/2022">

<meta name="location" content="us">

<meta name="robots" content="follow,index,noarchive">

<meta name="X-Server" content="INTE-T1">

<meta property="og:image"  
content="https://www.intel.com/etc.clientlibs/settings/wcm/designs/intel/us/en/  
images/resources/printlogo.png">

<meta property="og:type" content="company">

<meta property="og:site\_name" content="Intel">

<meta property="og:title" content="3.5. Accessing Remote System Upgrade  
through User Logic">

<meta property="fb:admins" content="267985180046218">

<meta property="og:url"  
content="https://www.intel.com/content/www/us/en/docs/programmable/  
683865/current/accessing-remote-system-upgrade-through.html">

<meta property="og:description" content="">

<meta http-equiv="content-type" content="text/html; charset=utf-8">

<meta name="emtcontenttype" content="Content Type|Design and  
Development Reference|Development Guides|Development User Guides;Content  
Type|Design and Development Reference|Development Guides|Development  
User Guides;">

<meta name="contentpath"  
content="/content/www/us/en/docs/programmable/683865/current/accessing-  
remote-system-upgrade-through">

<meta name="authoreddate" content="">

<meta name="localecode" content="en\_US">

<meta name="reimaginetoplevelcategory" content="Audience|Business|  
Technical Decision Maker (TDM)|Developer|FPGA Engineer;">

<meta name="mime" content="text/html">

<meta name="format" content="udeDocumentationDetail">

<meta name="excludefromviews" content="false">

<meta name="taxonomy" content="etm-7F4D4D11-85BF-4ACF-A305-3D077F78760B;etm-7a535fe38d6c4b1aa9749d79c0a2c89d;etm-a065764d12404422a4010b8396828f63;etm-83741EA4-0466-4A89-9395-C861EDA3D38B;etm-83741EA4-0466-4A89-9395-C861EDA3D38B;etm-74fc3401b6764c42ad8255f4feb9bd9e;etm-562F15FC-A2B4-4AC9-AE56-12E106ADD48F;etm-d370f01035d54b9a8dc4f13a6e3665e4;">

<meta name="title" content="3.5. Accessing Remote System Upgrade through User Logic">

<meta name="menu" content="">

<meta name="emtsubject" content="Subject|Design|FPGA Design|Remote System Upgrades;">

<meta name="reimaginefilters" content="Primary Content Tagging|Intel® FPGAs|Intel® Programmable Devices|Intel® MAX®|Intel® MAX® 10 FPGAs;Subject|Design|FPGA Design|Remote System Upgrades;Curated|DO NOT USE IN EXTERNAL FILTERS|Recommended;Primary Content Tagging|Intel® FPGAs|Intel® Programmable Devices;Primary Content Tagging|Intel® FPGAs|Intel® Programmable Devices;Content Type|Design and Development Reference|Development Guides|Development User Guides;Primary Content Tagging|Intel® FPGAs|Intel® FPGA Intellectual Property|Basic Functions;">

<meta name="generic1" content="true">

<meta name="emtaudience" content="Audience|Business|Technical Decision Maker (TDM)|Developer|FPGA Engineer;">

<meta name="intelkeywords" content="">

<meta name="lastModifieddate" content="">

<meta name="thumbnailurl" content="">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<link rel="icon" type="image/png" sizes="32x32" href="/etc.clientlibs/settings/wcm/designs/intel/default/resources/favicon-32x32.png">

<link rel="icon" type="image/png" sizes="16x16" href="/etc.clientlibs/settings/wcm/designs/intel/default/resources/favicon-16x16.png">

```
<link rel="shortcut icon"
href="/etc.clientlibs/settings/wcm/designs/intel/default/resources/favicon.ico">
```

```
<link rel="canonical"
href="https://www.intel.com/content/www/us/en/docs/programmable/683865/
current/accessing-remote-system-upgrade-through.html">
<link rel="alternate" hreflang="ja-jp"
href="https://www.intel.co.jp/content/www/jp/ja/docs/programmable/683865/
current/accessing-remote-system-upgrade-through.html">
    <link rel="alternate" hreflang="zh-cn"
href="https://www.intel.cn/content/www/cn/zh/docs/programmable/683865/
current/accessing-remote-system-upgrade-through.html">
    <link rel="alternate" hreflang="en-us"
href="https://www.intel.com/content/www/us/en/docs/programmable/683865/
current/accessing-remote-system-upgrade-through.html">
    <link rel="alternate" hreflang="x-default"
href="https://www.intel.com/content/www/us/en/docs/programmable/683865/
current/accessing-remote-system-upgrade-through.html">
```

```
<style>
@-ms-viewport{width:device-width;}

</style>
```

```
    <link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/intc-
core.min.css" as="style"><link rel="stylesheet"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/intc-
core.min.css" type="text/css"><script
src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/intc-
core.min.js" defer=""></script>
```

```
<script
src="https://cdnjs.cloudflare.com/ajax/libs/clipboard.js/2.0.0/clipboard.min.js"></
script><style type="text/css">.MathJax_Hover_Frame {border-radius: .25em; -
webkit-border-radius: .25em; -moz-border-radius: .25em; -khtml-border-
radius: .25em; box-shadow: 0px 0px 15px #83A; -webkit-box-shadow: 0px 0px
```

```

15px #83A; -moz-box-shadow: 0px 0px 15px #83A; -khtml-box-shadow: 0px 0px
15px #83A; border: 1px solid #A6D ! important; display: inline-block; position:
absolute}
.MathJax_Menu_Button .MathJax_Hover_Arrow {position: absolute; cursor:
pointer; display: inline-block; border: 2px solid #AAA; border-radius: 4px; -
webkit-border-radius: 4px; -moz-border-radius: 4px; -khtml-border-radius: 4px;
font-family: 'Courier New',Courier; font-size: 9px; color: #F0F0F0}
.MathJax_Menu_Button .MathJax_Hover_Arrow span {display: block; background-
color: #AAA; border: 1px solid; border-radius: 3px; line-height: 0; padding: 4px}
.MathJax_Hover_Arrow:hover {color: white!important; border: 2px solid #CCC!
important}
.MathJax_Hover_Arrow:hover span {background-color: #CCC!important}
</style><style type="text/css">#MathJax_About {position: fixed; left: 50%;
width: auto; text-align: center; border: 3px outset; padding: 1em 2em;
background-color: #DDDDDD; color: black; cursor: default; font-family: message-
box; font-size: 120%; font-style: normal; text-indent: 0; text-transform: none;
line-height: normal; letter-spacing: normal; word-spacing: normal; word-wrap:
normal; white-space: nowrap; float: none; z-index: 201; border-radius: 15px; -
webkit-border-radius: 15px; -moz-border-radius: 15px; -khtml-border-radius:
15px; box-shadow: 0px 10px 20px #808080; -webkit-box-shadow: 0px 10px
20px #808080; -moz-box-shadow: 0px 10px 20px #808080; -khtml-box-shadow:
0px 10px 20px #808080; filter:
progid:DXImageTransform.Microsoft.dropshadow(OffX=2, OffY=2, Color='gray',
Positive='true')}
#MathJax_About.MathJax_MousePost {outline: none}
.MathJax_Menu {position: absolute; background-color: white; color: black; width:
auto; padding: 5px 0px; border: 1px solid #CCCCCC; margin: 0; cursor: default;
font: menu; text-align: left; text-indent: 0; text-transform: none; line-height:
normal; letter-spacing: normal; word-spacing: normal; word-wrap: normal; white-
space: nowrap; float: none; z-index: 201; border-radius: 5px; -webkit-border-
radius: 5px; -moz-border-radius: 5px; -khtml-border-radius: 5px; box-shadow:
0px 10px 20px #808080; -webkit-box-shadow: 0px 10px 20px #808080; -moz-
box-shadow: 0px 10px 20px #808080; -khtml-box-shadow: 0px 10px 20px
#808080; filter: progid:DXImageTransform.Microsoft.dropshadow(OffX=2,
OffY=2, Color='gray', Positive='true')}
.MathJax_MenuItem {padding: 1px 2em; background: transparent}
.MathJax_MenuArrow {position: absolute; right: .5em; padding-top: .25em; color:
#666666; font-size: .75em}
.MathJax_MenuActive .MathJax_MenuArrow {color: white}
.MathJax_MenuArrow.RTL {left: .5em; right: auto}
.MathJax_MenuCheck {position: absolute; left: .7em}
.MathJax_MenuCheck.RTL {right: .7em; left: auto}
.MathJax_MenuRadioCheck {position: absolute; left: .7em}
.MathJax_MenuRadioCheck.RTL {right: .7em; left: auto}
.MathJax_MenuLabel {padding: 1px 2em 3px 1.33em; font-style: italic}
.MathJax_MenuRule {border-top: 1px solid #DDDDDD; margin: 4px 3px}
.MathJax_MenuDisabled {color: GrayText}
.MathJax_MenuActive {background-color: #606872; color: white}
.MathJax_MenuDisabled:focus, .MathJax_MenuLabel:focus {background-color:
#E8E8E8}
.MathJax_ContextMenu:focus {outline: none}
.MathJax_ContextMenu .MathJax_MenuItem:focus {outline: none}
#MathJax_AboutClose {top: .2em; right: .2em}
.MathJax_Menu .MathJax_MenuClose {top: -10px; left: -10px}

```

```

.MathJax_MenuClose {position: absolute; cursor: pointer; display: inline-block;
border: 2px solid #AAA; border-radius: 18px; -webkit-border-radius: 18px; -moz-
border-radius: 18px; -khtml-border-radius: 18px; font-family: 'Courier
New',Courier; font-size: 24px; color: #F0F0F0}
.MathJax_MenuClose span {display: block; background-color: #AAA; border:
1.5px solid; border-radius: 18px; -webkit-border-radius: 18px; -moz-border-
radius: 18px; -khtml-border-radius: 18px; line-height: 0; padding: 8px 0 6px}
.MathJax_MenuClose:hover {color: white!important; border: 2px solid #CCC!
important}
.MathJax_MenuClose:hover span {background-color: #CCC!important}
.MathJax_MenuClose:hover:focus {outline: none}
</style><style type="text/css">.MathJax_Preview .MJXf-math {color: inherit!
important}
</style><style type="text/css">.MJX_Assistive_MathML {position: absolute!
important; top: 0; left: 0; clip: rect(1px, 1px, 1px, 1px); padding: 1px 0 0 0!
important; border: 0!important; height: 1px!important; width: 1px!important;
overflow: hidden!important; display: block!important; -webkit-touch-callout:
none; -webkit-user-select: none; -khtml-user-select: none; -moz-user-select:
none; -ms-user-select: none; user-select: none}
.MJX_Assistive_MathML.MJX_Assistive_MathML_Block {width: 100%!important}
</style><style type="text/css">#MathJax_Zoom {position: absolute;
background-color: #F0F0F0; overflow: auto; display: block; z-index: 301;
padding: .5em; border: 1px solid black; margin: 0; font-weight: normal; font-
style: normal; text-align: left; text-indent: 0; text-transform: none; line-height:
normal; letter-spacing: normal; word-spacing: normal; word-wrap: normal; white-
space: nowrap; float: none; -webkit-box-sizing: content-box; -moz-box-sizing:
content-box; box-sizing: content-box; box-shadow: 5px 5px 15px #AAAAAA; -
webkit-box-shadow: 5px 5px 15px #AAAAAA; -moz-box-shadow: 5px 5px 15px
#AAAAAA; -khtml-box-shadow: 5px 5px 15px #AAAAAA; filter:
progid:DXImageTransform.Microsoft.dropshadow(OffX=2, OffY=2, Color='gray',
Positive='true')}
#MathJax_ZoomOverlay {position: absolute; left: 0; top: 0; z-index: 300; display:
inline-block; width: 100%; height: 100%; border: 0; padding: 0; margin: 0;
background-color: white; opacity: 0; filter: alpha(opacity=0)}
#MathJax_ZoomFrame {position: relative; display: inline-block; height: 0; width:
0}
#MathJax_ZoomEventTrap {position: absolute; left: 0; top: 0; z-index: 302;
display: inline-block; border: 0; padding: 0; margin: 0; background-color: white;
opacity: 0; filter: alpha(opacity=0)}
</style><style type="text/css">.MathJax_Preview {color: #888}
#MathJax_Message {position: fixed; left: 1px; bottom: 2px; background-color:
#E6E6E6; border: 1px solid #959595; margin: 0px; padding: 2px 8px; z-index:
102; color: black; font-size: 80%; width: auto; white-space: nowrap}
#MathJax_MSIE_Frame {position: absolute; top: 0; left: 0; width: 0px; z-index:
101; border: 0px; margin: 0px; padding: 0px}
.MathJax_Error {color: #CC0000; font-style: italic}
</style><script>var isTargetEnabled =false;</script><script>
var cq_tms = {
  wa_emtcontenttype:
"emtcontenttype:designanddevelopmentreference/developerguide/developeruse
rguide",
  wa_primarycontenttagging:
"primarycontenttagging:intelfpgas/intelprogrammabledevices,primarycontenttag
ging:intelfpgas/intelprogrammabledevices/intelmax/

```

```
intelmax10fpgas,primarycontenttagging:intelfpgas/
intelfpgaintellectualproperty/basicfunctions",
  wa_curated: "curated:donotuseinexternalfilters/recommended",
  wa_emtsubject: "emtsubject:design/fpgadesign/remotesystemupgrades",

  wa_industry_type: "",
  wa_partner_prog: "",
  wa_subject: "",
  wa_biz_size: "",
  wa_emt_org: "",
  wa_emt_intel: "",
  wa_partner_type: "",
  wa_programidentifier: "",
  wa_location: "us",
  wa_language: "en",
  wa_english_title: "3.5. Accessing Remote System Upgrade through User
Logic",
  wa_content_type: "",
  wa_intel_platform: "",
  wa_applications: "",
  wa_local: "en_US",
  wa_intel_technology: "",
  wa_system_type: "",
  wa_product_name: "",
  wa_audience:
"emtaudience:business/btssbusnesstechnologysolutionspecialist/developer/
fpgaengineer",
  wa_life_cycle: "",
  wa_cq_url:
"/content/www/us/en/docs/programmable/683865/current/accessing-remote-
system-upgrade-through.html",
  wa_page_type_micro: "udeDocumentationDetail",
  wa_env: "prd",
  wa_cq_pub_env: "publish",
  wa_transl_status: "",
  wa_product_id: "98847,216704,216704,215648",
  wa_software: "",
  wa_reference_design: "",
  wa_codename: "",
  wa_created_date: "1639788876436",
  wa_modified_date: "1639788876442",
  wa_off_time: "1924992000000",
  wa_ownedby: "",
  wa_managedby: "",
  wa_idz_nid : "",
  wa_event_type: "",
  wa_idz_custom_tags: "",
  wa_programming_language: "",
  wa_skill_level: "",
  wa_solution: "",
  wa_product_formFactor: "",
  wa_operating_system: "",
  wa_marketing_products: "",
  wa_ssg_third_party_prod_sys_sol: "",
```

```
wa_upeNamespace: "",
wa_doc_id:"683865",
wa_doc_version:"current",
wa_doc_publishdate:"5/26/2022",
```

```
wa_secondary_content_type:
"emtcontenttype:designanddevelopmentreference/developerguide/developeruse
rguide"
```

```
};
```

```
cq_tms.wa_tms_sync_load = "deferred";
```

```
</script><script>
  var chatContextObj = {};
  chatContextObj["locale"] = 'en-US';
  chatContextObj["app"] = 'PSG';
  chatContextObj["supportProductMap"] = 'NA';
</script><script>!function(){var e=setInterval(function(){"undefined"!=typeof
$CQ&&($CQ(function(){CQ_Analytics.SegmentMgr.loadSegments("/etc/segmenta
tion"),CQ_Analytics.ClientContextUtils.init("/etc/clientcontext/
intel",window.location.pathname.substr(0,window.location.pathname.indexOf("."))
))),clearInterval(e))},100)}();</script><link rel="stylesheet" type="text/css"
href="/etc/clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
commons-page.min.css"><link rel="stylesheet" type="text/css"
href="/etc/clientlibs/settings/wcm/designs/intel/us/en/css/resources/css/
intel.rwd.override.css"><link rel="stylesheet" type="text/css"
href="/etc/clientlibs/settings/wcm/designs/intel/us/en/css/resources/css/
intel.rwd.override.css"><style type="text/css">.MJXp-script {font-size: .8em}
.MJXp-right {-webkit-transform-origin: right; -moz-transform-origin: right; -ms-
transform-origin: right; -o-transform-origin: right; transform-origin: right}
.MJXp-bold {font-weight: bold}
.MJXp-italic {font-style: italic}
.MJXp-scr {font-family: MathJax_Script,'Times New
Roman','Times,STIXGeneral,serif}
.MJXp-frak {font-family: MathJax_Fraktur,'Times New
Roman','Times,STIXGeneral,serif}
.MJXp-sf {font-family: MathJax_SansSerif,'Times New
Roman','Times,STIXGeneral,serif}
.MJXp-cal {font-family: MathJax_Caligraphic,'Times New
Roman','Times,STIXGeneral,serif}
.MJXp-mono {font-family: MathJax_Typewriter,'Times New
Roman','Times,STIXGeneral,serif}
.MJXp-largeop {font-size: 150%}
.MJXp-largeop.MJXp-int {vertical-align: -.2em}
.MJXp-math {display: inline-block; line-height: 1.2; text-indent: 0; font-family:
'Times New Roman','Times,STIXGeneral,serif; white-space: nowrap; border-
collapse: collapse}
```

```

.MJXp-display {display: block; text-align: center; margin: 1em 0}
.MJXp-math span {display: inline-block}
.MJXp-box {display: block!important; text-align: center}
.MJXp-box:after {content: " "}
.MJXp-rule {display: block!important; margin-top: .1em}
.MJXp-char {display: block!important}
.MJXp-mo {margin: 0 .15em}
.MJXp-mfrac {margin: 0 .125em; vertical-align: .25em}
.MJXp-denom {display: inline-table!important; width: 100%}
.MJXp-denom > * {display: table-row!important}
.MJXp-surd {vertical-align: top}
.MJXp-surd > * {display: block!important}
.MJXp-script-box > * {display: table!important; height: 50%}
.MJXp-script-box > * > * {display: table-cell!important; vertical-align: top}
.MJXp-script-box > *:last-child > * {vertical-align: bottom}
.MJXp-script-box > * > * > * {display: block!important}
.MJXp-mphantom {visibility: hidden}
.MJXp-munderover {display: inline-table!important}
.MJXp-over {display: inline-block!important; text-align: center}
.MJXp-over > * {display: block!important}
.MJXp-munderover > * {display: table-row!important}
.MJXp-mtable {vertical-align: .25em; margin: 0 .125em}
.MJXp-mtable > * {display: inline-table!important; vertical-align: middle}
.MJXp-mtr {display: table-row!important}
.MJXp-mtd {display: table-cell!important; text-align: center; padding: .5em 0 .5em}
.MJXp-mtr > .MJXp-mtd:first-child {padding-left: 0}
.MJXp-mtr:first-child > .MJXp-mtd {padding-top: 0}
.MJXp-mlabeledtr {display: table-row!important}
.MJXp-mlabeledtr > .MJXp-mtd:first-child {padding-left: 0}
.MJXp-mlabeledtr:first-child > .MJXp-mtd {padding-top: 0}
.MJXp-merror {background-color: #FFFF88; color: #CC0000; border: 1px solid #CC0000; padding: 1px 3px; font-style: normal; font-size: 90%}
.MJXp-scale0 {-webkit-transform: scaleX(.0); -moz-transform: scaleX(.0); -ms-transform: scaleX(.0); -o-transform: scaleX(.0); transform: scaleX(.0)}
.MJXp-scale1 {-webkit-transform: scaleX(.1); -moz-transform: scaleX(.1); -ms-transform: scaleX(.1); -o-transform: scaleX(.1); transform: scaleX(.1)}
.MJXp-scale2 {-webkit-transform: scaleX(.2); -moz-transform: scaleX(.2); -ms-transform: scaleX(.2); -o-transform: scaleX(.2); transform: scaleX(.2)}
.MJXp-scale3 {-webkit-transform: scaleX(.3); -moz-transform: scaleX(.3); -ms-transform: scaleX(.3); -o-transform: scaleX(.3); transform: scaleX(.3)}
.MJXp-scale4 {-webkit-transform: scaleX(.4); -moz-transform: scaleX(.4); -ms-transform: scaleX(.4); -o-transform: scaleX(.4); transform: scaleX(.4)}
.MJXp-scale5 {-webkit-transform: scaleX(.5); -moz-transform: scaleX(.5); -ms-transform: scaleX(.5); -o-transform: scaleX(.5); transform: scaleX(.5)}
.MJXp-scale6 {-webkit-transform: scaleX(.6); -moz-transform: scaleX(.6); -ms-transform: scaleX(.6); -o-transform: scaleX(.6); transform: scaleX(.6)}
.MJXp-scale7 {-webkit-transform: scaleX(.7); -moz-transform: scaleX(.7); -ms-transform: scaleX(.7); -o-transform: scaleX(.7); transform: scaleX(.7)}
.MJXp-scale8 {-webkit-transform: scaleX(.8); -moz-transform: scaleX(.8); -ms-transform: scaleX(.8); -o-transform: scaleX(.8); transform: scaleX(.8)}
.MJXp-scale9 {-webkit-transform: scaleX(.9); -moz-transform: scaleX(.9); -ms-transform: scaleX(.9); -o-transform: scaleX(.9); transform: scaleX(.9)}

```



```
.MathJax_PHTML .noError {vertical-align: ; font-size: 90%; text-align: left; color:
black; padding: 1px 3px; border: 1px solid}
</style><style id="wap-consent-banner-style-hide">#onetrust-banner-
sdk, .onetrust-pc-dark-filter.ot-fade-in{display:none !important}</style><script
type="text/javascript" async="" charset="utf-8" id="utag_intel.profile-cq.asmo-
na_2080" src="//tms-global.intel.com/profile-cq.asmo-na/prod/utag.2080.js?
utv=ut4.48.202207221456"></script><script type="text/javascript" async=""
charset="utf-8" id="utag_intel.profile-cq.asmo-na_1600" src="//tms-
global.intel.com/profile-cq.asmo-na/prod/utag.1600.js?
utv=ut4.48.202207221456"></script><script type="text/javascript" async=""
charset="utf-8" id="utag_intel.profile-cq.asmo-na_1731" src="//tms-
global.intel.com/profile-cq.asmo-na/prod/utag.1731.js?
utv=ut4.48.202207221456"></script><script type="text/javascript" async=""
charset="utf-8" id="utag_intel.profile-cq.asmo-na_1715" src="//tms-
global.intel.com/profile-cq.asmo-na/prod/utag.1715.js?
utv=ut4.48.202207221456"></script><style id="at-makers-style" class="at-
flicker-control">
.mboxDefault {visibility: hidden;}
</style></head>
```

```
<body class="page-is-published global-nav new_browser cookie-
oldbrowser"><div id="MathJax_Message" style="display: none;"></div>
```

```
<div class="skip-to-main-content">
  <div class="sb-skipLinkWrapper invisible">
    <a href="#primary-content" class="inline-block bg-greenDarkApron color-
textWhite text-bold text-noUnderline sb-skipLink visible">Skip To Main
Content</a>
  </div>
</div>
```

```
<script>  
  var isLoggedIn = (document.cookie.indexOf('IGHFLoggedIn') != -1);  
  var loginValidateURL =  
'https://www.intel.com/libs/apps/intel/myintel/profile.html/validate/loggedin';  
</script>
```

```
<div class="global">
```

```
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
nav.min.css" as="style"><link rel="stylesheet"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
nav.min.css" type="text/css">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
secondaryNav.min.css" as="style"><link rel="stylesheet"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
secondaryNav.min.css" type="text/css">
```

```
<div class="global-nav-redesign global component" data-
component="global-nav-redesign" data-component-id="1">
  <header role="banner">
    <nav class="intel-navbar advanced-search" role="navigation" aria-
label="main navigation" data-igm="">
      <!-- Brand and toggle get grouped for better mobile display -->
      <div class="navbar-wraper">

        <div class="navbar-logo">
          <a href="/content/www/us/en/homepage.html" alt="Intel
homepage" class="intel-logo-rebrand">

            
          </a>
        </div>

        <div class="navbar-left">
```

```

        <!-- mobile: menu toggle, sign in -->
        <div class="visible-xs">
            <button type="button" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" class="mega-hamburger
nav-link-icon nav-link-icon-toggle collapsed" data-target="#primary-nav" aria-
expanded="false" aria-controls="primary-nav" data-mega-
control="hamburger">
                <span class="sr-only">Toggle Navigation</span>
                <span class="fa-intel-menu icon-toggle-off"></span>
                <span class="fa-cancel-thin icon-toggle-on"></span>
            </button>
        </div>

        <!-- START DYNAMIC NAVIGATION MENEU -->
        <div class="collapse mega-menu-collapse" id="primary-nav">
            <div class="mega-menu-wrap">
                <ol class="mega-navbar unique-container-global-nav-
items">
                    <!-- Start: Primary Nav Items -->

```

```
<li class="primary-nav-item">
  <button role="button" class="nav-link-primary collapsed" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" id="trigger-menu-0" data-
parent="#primary-nav" data-target="#menu-0" data-mega-control="l1" aria-
expanded="false" data-secure-link="none"
aria-controls="menu-0">Products</button>
```

```
<div class="mega-panel collapse" id="menu-0" role="region" aria-
expanded="false" aria-hidden="true" aria-label="Products Menu">
```

```
<div class="mega-panel-wrap">
  <div class="mega-panel-body">
    <div class="mega-body-wrap">
```

```
      <!-- If there is an unique level 2 it will use mega panel
layout !-->
```

<!-- +-----+ -->

```
<div class="mega-panel-heading" data-secure-link="none">
  <div class="nav-l2-container">
    <a href="/content/www/us/en/products/overview.html" class="nav-l2
nav-l2--no-border" data-
wap="{&quot;category&quot;:&quot;products&quot;,&quot;sectiontype&quot;:&
quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
      <span class=""></span>
      Products Home
    </a>
  </div>
```

```
<div class="panel-content flex-content-wrap">
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/details/processors.html" class="nav-l3
has-link" data-wap="{&quot;category&quot;:&quot;products-
home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class="fa-processors"></span>
  Processors
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
  <li data-secure-link="none">
    <a
href="/content/www/us/en/products/details/processors/xeon/scalable.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
      <span class=""></span>
      Intel® Xeon® Scalable
    </a>
  </li>
```



<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/xeon.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Xeon®
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/core.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Core™
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/pentium.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Pentium®
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/celeron.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Celeron®
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/atom.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel Atom®
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/movidius-
vpu.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Movidius™ VPUs
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/embedded-
processors.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    IoT and Embedded Processors
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/systems-devices.html" class="nav-l3
has-link" data-wap="{&quot;category&quot;:&quot;products-
home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class="fa-system-devices"></span>
  Systems & Devices
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
  <li data-secure-link="none">
    <a
href="/content/www/us/en/products/systems-devices/laptops/evo.html"
class="nav-l4" data-
```

```
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Intel® Evo™
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/systems-devices/laptops.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
      Laptops
    </a>
  </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/products/docs/boards-kits/nuc/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® NUC
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
```



```
        <a href="/content/www/us/en/products/systems-devices/desktops.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Desktops
    </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
        <a
href="/content/www/us/en/products/systems-devices/workstations.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Workstations
    </a>
</li>
```

<!-- +-----+ -->

```

    <li data-secure-link="none">
      <a
href="/content/www/us/en/architecture-and-technology/vpro/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
      <span class=""></span>
      Intel vPro®
    </a>
  </li>

```

```

</ul>
</div>

```

```

</div>

```

<!-- +-----+ -->

```

<div class="panel-item" data-secure-link="none">

```

```
<a href="/content/www/us/en/products/details/servers.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;products-home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&quot;:&quot;level3&quot;}">
  <span class="fa-server-products"></span>
  Server Products
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/servers/server-systems.html" class="nav-l4" data-wap="{&quot;category&quot;:&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
```

```

        <span class=""></span>
        Single Node Servers
    </a>
</li>

```

```
<!-- +-----+ -->
```

```

    <li data-secure-link="none">
        <a href="/content/www/us/en/products/details/servers/multi-node-server-
systems.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
            <span class=""></span>
            Multi Node Servers
        </a>
    </li>

```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/servers/data-center-
systems.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Data Center Systems
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/servers/server-
chassis.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
```

```

        <span class=""></span>
        Server Chassis
    </a>
</li>

```

```
<!-- +-----+ -->
```

```

    <li data-secure-link="none">
        <a href="/content/www/us/en/products/details/servers/server-
boards.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
            <span class=""></span>
            Server Boards
        </a>
    </li>

```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/servers/raid.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    SAS/RAID Products
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/server-management/intel-server-
management.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
```

```
<span class=""></span>
  Intel® Server Management
</a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/programmable.html" class="nav-l3 has-
link" data-wap="{&quot;category&quot;:&quot;products-
home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&
quot;:&quot;level3&quot;}">
```

```
  <span class="fa-fpga-products"></span>
  FPGAs & Programmable Devices
</a>
```



```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/products/details/fpga.html" class="nav-l4"
data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Intel® FPGAs
      </a>
    </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/programmable/edge-centric-
fpga.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Edge-Centric FPGAs
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/fpga/max.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    CPLDs
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/programmable/configuration-
device.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Configuration Devices
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/products/details/fpga/development-tools/quartus-
prime.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Quartus® Prime Design Software
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/fpga/intellectual-
property.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intellectual Property
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/fpga/development-
kits.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Boards & Kits
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/fpga/platforms/pac.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
  Acceleration Cards
</a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/details/easic.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;products-home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&quot;:&quot;level3&quot;}">
  <span class="fa-processors"></span>
  Structured ASICs
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/products/details/easic/n5x.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;;&quot;sectiontype&quot;:&quot;sub
heading&quot;;&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Intel® eASIC™ N5X Devices
      </a>
    </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/easic/n3xs.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® eASIC™ N3XS Devices
  </a>
</li>
```

<!-- +-----+ -->



```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/easic/n3x.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® eASIC™ N3X Devices
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/easic/easicopy.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® easicopy™ Devices
  </a>
</li>
```

```
</ul>
</div>
```

</div>

<!-- +-----+ -->

<div class="panel-item" data-secure-link="none">

<a href="/content/www/us/en/products/details/chipsets.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;;&quot;products-home&quot;;&quot;sectiontype&quot;;&quot;subheading&quot;;&quot;linktype&quot;;&quot;level3&quot;}">  
    <span class="fa-chipsets-1"></span>  
    Chipsets  
</a>

<div class="panel-item-content">  
    <ul class="panel-links nav-l4-list list-unstyled">

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/chipsets/mobile-
chipsets.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Mobile
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/chipsets/desktop-
chipsets.html" class="nav-l4" data-
```

```
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Desktop
</a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
    <a href="/content/www/us/en/products/chipsets/server-chipsets.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Server
    </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/documentation-resources/developer.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Embedded
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/details/discrete-gpus.html" class="nav-l3
has-link" data-wap="{&quot;category&quot;:&quot;products-
home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class="fa-discrete-graphic-gpu-spark"></span>
  Graphics Processing Units
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/discrete-gpus/arc.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Arc™
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/discrete-gpus/iris-xe-max.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Intel® Iris® X<sup>e</sup> MAX
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/discrete-gpus/server-graphics-
card.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Server GPU
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```



```
<a href="/content/www/us/en/products/details/memory-storage.html"
class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;products-
home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class="fa-memory-storage-1"></span>
  Memory & Storage
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
  <li data-secure-link="none">
    <a href="/content/www/us/en/products/details/memory-storage.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;;&quot;sectiontype&quot;:&quot;sub
heading&quot;;&quot;linktype&quot;:&quot;level4&quot;}">
      <span class=""></span>
      Solid State Drives
    </a>
  </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/memory-storage/optane-
memory.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Optane™ Memory
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/docs/memory-storage/optane-
persistent-memory/overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Optane™ Persistent Memory
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/details/wireless.html" class="nav-l3 has-
link" data-wap="{&quot;category&quot;:&quot;products-
```

```
home";&quot;sectiontype":&quot;subheading";&quot;linktype&
quot;:&quot;level3"}>
  <span class="fa-wireless-products"></span>
  Wireless Products
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/wireless/killer-series.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;;&quot;sectiontype&quot;:&quot;sub
heading&quot;:&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Killer™ Wireless Products
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/wireless/wi-fi-6e-
series.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Wi-Fi 6E Products
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/wireless/wi-fi-6-
series.html" class="nav-l4" data-
```

```
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
  Intel® Wi-Fi 6 Products
</a>
</li>
```

```
<!-- +-----+ -->
```

```
  <li data-secure-link="none">
    <a href="/content/www/us/en/products/details/wireless/wireless-ac-
products.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
      <span class=""></span>
      Intel® Wireless-AC Products
    </a>
  </li>
```

```
</ul>
</div>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/network-io.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;products-home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&quot;:&quot;level3&quot;}">
```

```
  <span class="fa-ethernet-products"></span>
```

```
  Network Communications and I/O
```

```
</a>
```

```
<div class="panel-item-content">
```

```
  <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/architecture-and-technology/ethernet.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Intel® Ethernet Technologies
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/ethernet.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Intel® Ethernet Products
  </a>
```



</li>

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/network-io/smartnic.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Infrastructure Processing Units (IPUs)
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/network-io/high-performance-
fabrics/silicon-photonics.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Intel® Silicon Photonics Optical Transceivers
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/network-io/programmable-
ethernet-switch.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Programmable Ethernet Switch Products
  </a>
```

</li>

</ul>  
</div>

</div>

<!-- +-----+ -->

<div class="panel-item" data-secure-link="none">

<a href="https://ark.intel.com/content/www/us/en/ark.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;products-home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&quot;:&quot;level3&quot;}">  
    <span class="fa-book"></span>  
    Product Specifications  
</a>

</div>

```
</div>
</div>
```

```

    </div>
  </div>
</div>
</li>
```

```
<li class="primary-nav-item">
  <button role="button" class="nav-link-primary collapsed" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" id="trigger-menu-1" data-
parent="#primary-nav" data-target="#menu-1" data-mega-control="l1" aria-
expanded="false" data-secure-link="none"
aria-controls="menu-1">Support</button>
```

```
<div class="mega-panel collapse" id="menu-1" role="region" aria-
expanded="false" aria-hidden="true">
```

```

  <div class="mega-panel-wrap">
    <div class="mega-panel-body">
      <div class="mega-body-wrap">

        <!-- If there is an unique level 2 it will use mega panel
layout !-->
```

```

      <div class="panel-content flex-content-wrap">
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;;&quot;supportanalytics&quot;;&quot;sectiontype&
quot;;&quot;subheading&quot;;&quot;linktype&quot;;&quot;level2&quot;}">
    <span class=""></span>
    Drivers & Downloads
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/support/detect.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Auto-update your Drivers
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/download-center/home.html" class="nav-
l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
      Download Center
    </a>
  </li>
```

```
</ul>
</div>
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;:&quot;&quot;supportanalytics&quot;,&quot;sectiontype&
quot;:&quot;&quot;subheading&quot;,&quot;linktype&quot;:&quot;&quot;level2&quot;}">
    <span class=""></span>
    Support For
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/support.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;&quot;,&quot;sectiontype&quot;:&quot;&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;&quot;level4&quot;}">
    <span class=""></span>
    Products
  </a>
</li>
```



```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/developer/get-help/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Developers
      </a>
    </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/supplier/resources/self-help/intel-
corporation-support.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Suppliers
  </a>
</li>
```

```
</ul>
</div>
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;:&quot;supportanalytics&quot;;&quot;sectiontype&
quot;:&quot;subheading&quot;;&quot;linktype&quot;:&quot;level2&quot;}">
    <span class=""></span>
    Resources
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
<li data-secure-link="none">
```

```

        <a href="/content/www/us/en/support/topics/utility-tools.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Product Tools & Utilities
    </a>
</li>

```

```

<!-- +-----+ -->

```

```

    <li data-secure-link="none">
        <a href="https://community.intel.com/" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Support Community
    </a>
</li>

```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="https://supporttickets.intel.com/servicecenter?lang=en-US"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Warranty Information
  </a>
</li>
```

<!-- +-----+ -->

```
        <li data-secure-link="none">
            <a href="/content/www/us/en/support/contact-intel.html" class="nav-l4"
data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;&quot;level4&quot;}">
                <span class=""></span>
                Contact Support
            </a>
        </li>
```

```
        </ul>
    </div>
</div>
```

```
        </div>
    </div>
</div>
</div>
</div>
</li>
```

```
<li class="primary-nav-item">
    <button role="button" class="nav-link-primary collapsed" data-
wap="{&quot;linktype&quot;:&quot;&quot;level1&quot;}" id="trigger-menu-2" data-
parent="#primary-nav" data-target="#menu-2" data-mega-control="l1" aria-
expanded="false" data-secure-link="none" aria-controls="menu-
2">Solutions</button>
```

```
<div class="mega-panel collapse" id="menu-2" role="region" aria-  
expanded="false" aria-hidden="true">
```

```
<div class="mega-panel-wrap">  
  <div class="mega-panel-body">  
    <div class="mega-body-wrap">
```

```
      <!-- If there is an unique level 2 it will use mega panel  
layout !-->
```

```
<div class="panel-content flex-content-wrap">
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;:&quot;solutions&quot;,&quot;sectiontype&quot;:&
quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
    <span class=""></span>
    Business Solutions
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/artificial-intelligence/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    AI
  </a>
</li>
```



<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/wireless-network/5g-technology-
overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
      5G
    </a>
  </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/business/overview.html" class="nav-l4"
data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Business PCs
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/cloud-computing/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Cloud Computing
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/edge-computing/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Edge Computing
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/internet-of-things/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    IOT
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/topics/overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    View all &gt;
  </a>
</li>
```

```
        </ul>
      </div>
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;;&quot;solutions&quot;;&quot;sectiontype&quot;;&
quot;subheading&quot;;&quot;linktype&quot;;&quot;level2&quot;}">
```

```
<span class=""></span>
  Consumer Solutions
</div>
<div class="panel-item-content">

  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/products/creative-pro.html" class="nav-l4"
data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Creators
      </a>
    </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/gaming/serious-gaming.html" class="nav-
l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Gaming
  </a>
</li>
```

```
</ul>
</div>
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;;&quot;solutions&quot;;&quot;sectiontype&quot;;&
quot;subheading&quot;;&quot;linktype&quot;;&quot;level2&quot;}">
    <span class=""></span>
    Industry Solutions
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->



```
<li data-secure-link="none">
  <a href="/content/www/us/en/education/intel-education.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Education
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/financial-services-it/financial-services-
overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Financial Services
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/government/public-sector-solutions-
overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Government & Public Sector
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/healthcare-it/healthcare-overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Healthcare & Life Sciences
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/internet-of-things/industrial-iot/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Industrial
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/retail/overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Retail
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/transportation/overview.html" class="nav-
l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Transportation
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/industries/overview.html" class="nav-l4"
data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    View all &gt;
  </a>
```

</li>

</ul>  
</div>  
</div>

<!-- +-----+ -->

```

        <div class="panel-item" data-secure-link="none">
            <div class="nav-l3" data-
wap="{&quot;category&quot;:&quot;solutions&quot;,&quot;sectiontype&quot;:&
quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
                <span class=""></span>
                Services
            </div>
            <div class="panel-item-content">

                <ul class="panel-links nav-l4-list list-unstyled">

```

```

<!-- +-----+ -->

```

```

        <li data-secure-link="none">
            <a href="/content/www/us/en/software/data-center-overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
                <span class=""></span>
                Intel Data Center Manager
            </a>
        </li>

```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/foundry/intel-foundry-services.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel Foundry Services
  </a>
</li>
```

```
</ul>
</div>
</div>
```



<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;:&quot;solutions&quot;,&quot;sectiontype&quot;:&
quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
    <span class=""></span>
    Resources
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/customer-spotlight/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Customer Spotlight
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/tech-tips-and-tricks/tech-tips.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Technology Tips & Tricks
  </a>
```

</li>

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/partner/showcase/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Partner Showcase
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="https://marketplace.intel.com/s/" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Intel® Solutions Marketplace
      </a>
    </li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/company-overview/wonderful.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
```

```
        People Creating Wonderful
    </a>
</li>
```

```
    </ul>
  </div>
</div>
```

```
    </div>
  </div>
</div>
</div>
</div>
</li>
```

```
<li class="primary-nav-item">
  <button role="button" class="nav-link-primary collapsed" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" id="trigger-menu-3" data-
parent="#primary-nav" data-target="#menu-3" data-mega-control="l1" aria-
expanded="false" data-secure-link="none" aria-controls="menu-
3">Developers</button>
```

```
<div class="mega-panel collapse" id="menu-3" role="region" aria-
expanded="false" aria-hidden="true">
```

```
<div class="mega-panel-wrap">
  <div class="mega-panel-body">
    <div class="mega-body-wrap">
```

layout !--> <!-- If there is an unique level 2 it will use mega panel

<!-- +-----+ -->

```
<div class="mega-panel-heading" data-secure-link="none">
    <div class="nav-l2-container">
        <a href="/content/www/us/en/developer/overview.html" class="nav-l2
nav-l2--no-border" data-
wap="{&quot;category&quot;:&quot;developers&quot;,&quot;sectiontype&quot;:
:&quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
            <span class=""></span>
            Developers Home
        </a>
    </div>
```

```
<div class="panel-content flex-content-wrap">
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/developer/tools/overview.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;developers-home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&quot;:&quot;level3&quot;}">  
  <span class=""></span>  
  Development Tools  
</a>
```

```
<div class="panel-item-content">  
  <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/developer/tools/software-catalog/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Software Catalog
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/download-center/home.html" class="nav-
l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Download Center
  </a>
</li>
```



```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="https://designintools.intel.com/" class="nav-l4" data-
wap="{&quot;category&quot;;&quot;&quot;;&quot;sectiontype&quot;;&quot;sub
heading&quot;;&quot;linktype&quot;;&quot;level4&quot;}">
        <span class=""></span>
        Design Tools and Services
      </a>
    </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="https://registrationcenter.intel.com/en/" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Software Registration
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/resources-documentation/developer.html"
class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;developers-
home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&
quot;:&quot;level3&quot;}">
```

<span class=""></span>  
Resources & Documentation  
</a>

</div>

<!-- +-----+ -->

<div class="panel-item" data-secure-link="none">

<a href="/content/www/us/en/developer/learn/overview.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;developers-home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&quot;:&quot;level3&quot;}">  
    <span class=""></span>  
    Learn  
</a>

</div>

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/developer/topic-technology/overview.html"
class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;developers-
home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class=""></span>
  Topics & Technologies
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/developer/topic-technology/artificial-
intelligence/overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Artificial Intelligence
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/developer/topic-technology/client/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Client
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/developer/topic-technology/cloud/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Cloud
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a
href="/content/www/us/en/developer/topic-technology/gamedev/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Game Development
      </a>
    </li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a
href="/content/www/us/en/developer/topic-technology/edge-5g/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Edge, IoT & 5G
      </a>
    </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/developer/topic-technology/high-
performance-computing/overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    High Performance Computing (HPC)
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->



```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/developer/community/overview.html" class="nav-  
l3 has-link" data-wap="{&quot;category&quot;:&quot;developers-  
home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&  
quot;:&quot;level3&quot;}">  
  <span class=""></span>  
  Communities & Events  
</a>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/developer/get-help/overview.html" class="nav-l3
has-link" data-wap="{&quot;category&quot;:&quot;developers-
home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class=""></span>
  Get Help
</a>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/developer/programs/overview.html" class="nav-l3
has-link" data-wap="{&quot;category&quot;:&quot;developers-
home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class=""></span>
  Developer Programs
</a>
```

```
        </div>
    </div>
</div>
```

```
        </div>
    </div>
</div>
</li>
```

```
<li class="primary-nav-item">
    <button role="button" class="nav-link-primary collapsed" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" id="trigger-menu-4" data-
parent="#primary-nav" data-target="#menu-4" data-mega-control="l1" aria-
expanded="false" data-secure-link="none"
aria-controls="menu-4">Partners</button>
```

```
<div class="mega-panel collapse" id="menu-4" role="region" aria-
expanded="false" aria-hidden="true">
```

```
<div class="mega-panel-wrap">
    <div class="mega-panel-body">
        <div class="mega-body-wrap">
```

```
            <!-- If there is an unique level 2 it will use mega panel
layout !-->
```

<!-- +-----+ -->

<div class="mega-panel-heading" data-secure-link="none">

<div class="panel-content flex-content-wrap">

<!-- +-----+ -->

<div class="panel-item" data-secure-link="none">

```
<a href="/content/www/us/en/partner-alliance/overview.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&quot;:&quot;level3&quot;}">
  <span class=""></span>
  Intel® Partner Alliance
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a
href="/content/www/us/en/partner-alliance/membership/overview.html"
class="nav-l4" data-wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        About Membership
      </a>
    </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/my-intel/partner-login.html" class="nav-l4"
data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Already a Member? Login
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/partner-alliance/marketplace/submit-a-
solution.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Submit a Solution
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/partner-alliance/help/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Get Help
  </a>
</li>
```

```
</ul>
```

</div>

</div>

<!-- +-----+ -->

<div class="panel-item" data-secure-link="none">

<a href="https://marketplace.intel.com/s/" class="nav-l3 has-link" data-wap="{&quot;category&quot;;&quot;&quot;;&quot;sectiontype&quot;;&quot;sub heading&quot;;&quot;linktype&quot;;&quot;level3&quot;}">  
 <span class=""></span>  
 Intel® Solutions Marketplace  
</a>

<div class="panel-item-content">  
 <ul class="panel-links nav-l4-list list-unstyled">



```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="https://marketplace.intel.com/s/offerings-by-category?
language=en_US" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Offerings by Category
      </a>
    </li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="https://marketplace.intel.com/s/partner-directory?
language=en_US" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
```

```
        Partner Directory
    </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/secure/retail/partner-solutions/overview.html"
class="nav-l3 has-link" data-
wap="{&quot;category&quot;;&quot;&quot;;&quot;sectiontype&quot;;&quot;sub
heading&quot;;&quot;linktype&quot;;&quot;level3&quot;}">
    <span class=""></span>
    Retail Partner Solutions
</a>
```

```
<div class="panel-item-content">
    <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
    <li data-secure-link="none">
      <a href="https://supporttickets.intel.com/supportrequest?lang=en-
US&amp;productId=211841%3A11430" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Retail Support
      </a>
    </li>
```

```
  </ul>
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```

        </div>
    </div>
</div>
</li>

```

```

<!-- Start Mega More+ Nav Item -->
<li class="primary-nav-item primary-nav-item-more hidden" data-mega-control-
more-item="" style="">
    <button data-wap="{&quot;linktype&quot;;&quot;level1&quot;}"
role="button" class="nav-link-primary collapsed" id="trigger-mega-more-panel"
data-target="#mega-more-panel" data-mega-control="more-l1" aria-
expanded="false" aria-controls="mega-more-panel">More +
    </button>
    <div class="mega-panel mega-more-panel collapse" id="mega-more-panel"
role="region" aria-expanded="false" aria-hidden="true" aria-
labelledby="trigger-mega-more-panel">
        <div class="mega-panel-wrap">
            <div class="mega-panel-body">
                <div class="panel-content">
                    <ol class="mega-navbar mega-navbar-more-list">

                        </ol>
                    </div>
                </div>
            </div>
        </div>
    </div>
</li>

```

```

<script type="text/javascript">
    /**
     * This chunk of code is used to bypass Akamai cache - since this goes to the
     globalNav that can be cleared independently
     */
    var globalMenuConfigs = {
        idpUrl:
        "https://sfederation.intel.com/federation2/sp/WebExperienceManagementSolutio
nonAEMforIntel/d3d3LmludGVsLmNvbQ%3D%3D"
    }
</script>

```

```

<!-- End Mega More+ Nav Item -->
</ol>

```

```
    </div>
  </div>
</div>
```

```
<!-- START MOBLE TOGGLE buttons -->
<div class="navbar-right">
```

```
  <!-- START: NON-signed in panel -->
```

```

<span id="not-logged-in-scenario" class="">
  <button type="button" title="Sign In" class="nav-link-icon nav-link-icon-
toggle collapsed" data-wap="{&quot;linktype&quot;;&quot;level1&quot;}" data-
target="#panel-signin" aria-expanded="false" aria-controls="panel-signin" data-
mega-control="signin">
    <span class="sr-only">Sign In</span>
    <span class="fa-intel-user-o icon-toggle-off"></span>
    <span class="fa-intel-user icon-toggle-on"></span>
  </button>

  <div class="mega-panel panel-layout-signin collapse" id="panel-signin">
  <div class="mega-panel-wrap">
    <div class="mega-panel-body">
      <div class="panel-content flex-content-wrap">
        <div class="panel-item with-sep-line panel-col-1of2">
          <form id="igm-form-signin"
action="https://www.intel.com/libs/apps/intel/login.json/securitytoken"
method="POST" name="igm-form-signin" class="intel-form" novalidate="">
            <h3 class="section-title">Sign In</h3>
            <div class="flex-layout-md">
              <div class="form-group flex-col-md vertical-gutter">
                <label for="username" class="component" data-
component="wa_skip_track" data-component-id="1">
                  <span class="sr-only">Username</span>
                  <input class="form-control form-input" aria-
describedby="uname-error" name="userid" id="username"
placeholder="Username" required="">
                </label>
                <div class="error validation-messages " id="uname-error">
                  <div class="rule broken">Your username is
missing</div>
                </div>
              </div>
              <div class="form-group flex-col-md vertical-gutter">
                <label for="password" class="component" data-
component="wa_skip_track" data-component-id="1">
                  <span class="sr-only">Password</span>
                  <input type="password" class="form-control form-input"
aria-describedby="pwd-error" id="password" name="password"
placeholder="Password" required="" autocomplete="off">
                </label>
                <div class="error validation-messages " id="pwd-error">
                  <div class="rule broken">Your password is
missing</div>
                </div>
              </div>
            </div>
            <div class="flex-layout-md flex-align-center vertical-gutter">
              <input type="hidden" name="callBack"
id="callBackSimplify">

```

```

        <input type="hidden" name="queryParam" id="queryParam"
value="https://www.intel.com/content/www/us/en/docs/programmable/683865/
current/accessing-remote-system-upgrade-through.html">
        <input type="submit" class="btn btn-primary blue-btn-white-
text" value="Sign In" data-wap="{&quot;linktype&quot;:&quot;sign-in&quot;}">
        <label for="cbRememberMe" class="has-switch-input">
            <input id="cbRememberMe" name="rememberme"
type="checkbox" value="true">
            <span class="check-box"></span>
            <span>Remember me</span>
        </label>
    </div>

    <p class="vertical-gutter">
        Forgot your Intel
        <a
href="https://www.intel.com/content/www/us/en/my-intel/forgot-
userid.html">username</a>
        or
        <a
href="https://www.intel.com/content/www/us/en/my-intel/forgot-
password.html">password</a>?
    </p>
    <p class="vertical-gutter">
        <a href="/content/www/us/en/support/topics/sign-in-
faq.html">Frequently Asked Questions</a>
    </p>
</form>
<div class="alert alert-danger" id="login-error" role="alert"></div>
</div>
<div class="panel-item panel-col-variant">
    <div class="padding-wrap valign-to-input">
        <p class="vertical-gutter" style="display: none;">Do you work
for Intel? <a data-wap_ref="sign-in-general" href="#"
onclick="intel.signinsimplify.geturl('https://myapps.microsoft.com/signin/
Azure_To_SEMP_Bridge_PR_IAP_7086/b5335fcd-30d1-4825-8a79-
4234279c8301?tenantId=46c98d88-e344-4ed4-8496-
4ed7712e255d&amp;RelayState=')">
            Sign in here</a>.
        </p>

        <p class="vertical-gutter">Don't have an Intel account?
        <a data-wap_ref="sign-up-general" href="#"
onclick="intel.signinHeaderSimplify.doRedirect('/forms/basic-intel-
registration.html')"> Sign up here </a>
        for a basic account.
    </p>

</div>
</div>
</div>
</div>
</div>
</div>

```

</span>

```
<iframe id="frameSigninSimplify" tabindex="-1" title="My Intel Sign in" aria-  
hidden="true" name="frameSigninSimplify"  
src="/etc.clientlibs/settings/wcm/designs/intel/clientlibs/pages/commons-page/  
resources/html/idamFormStaticSimplify.html" style="display:none;"></iframe>
```

<script>

```
var intel = intel || {};  
intel.signinsimplifyConfig = {  
  locale: '',  
  messages: {  
    InvalidCredential: 'The username or password you entered was invalid.',  
    InvalidField: 'The username or password you entered was invalid.',  
    AccountDisabled: 'For security reasons, your account has been disabled.  
For help, <a href="#" class="contactLink new-tab-link" target="_blank" rel="noopener noreferrer" >contact us</a>.',  
    AccountLocked: 'Your account has been locked. For help, please read the  
<a href="#" class="faqsLink new-tab-link" target="_blank" rel="noopener noreferrer" >Sign In FAQ</a>.',  
    UserNotFound: 'The username or password you entered was invalid.',  
    Unknown: 'An unexpected error occurred. Try it again. For help, use the  
contact or support options below.',  
    PasswordExpired: 'Your password is expired. Please change your  
password.',  
    LoginAssistLink: 'https://signin.intel.com/ContactUs.aspx',  
    faqsLink: '/content/www/my-intel/sign-in-help.html'  
  },  
  nameField: 'Username',  
  passField: 'Password',  
  signinUrl: '/libs/apps/intel/login.json/securitytoken',  
  isPopup: true,  
  responseHref:  
'https://www.intel.com/content/www/us/en/docs/programmable/683865/current/  
accessing-remote-system-upgrade-through.html?' + window.location.hash,  
  sslDomainUrl: 'www.intel.com',  
  loginUrl: 'https://welcome.intel.com/login.aspx?appid=258&qlogin=true',  
  ssoUri: 'https://federatesso.intel.com',  
  logoutUrl: 'https://welcome.intel.com/logout.aspx',  
  logoutHref:  
'https://signin.intel.com/Logout?RedirectURL=https://www.intel.com/content/  
www/us/en/docs/programmable/683865/current/accessing-remote-system-  
upgrade-through' + '.html',  
  logoutIGHFHref: 'https://signin.intel.com/Logout?RedirectURL=',  
  loginErrorID: '#login-error',  
  usernameID: '#username',  
  remembermeID: '#cbRememberMe',  
  formID: '#igm-form-signin',  
  unameErrorID: '#uname-error',  
  passID: '#password',
```



```

        passError: '#pwd-error',
        changePasswordUrl: '/content/www/us/en/my-intel/change-password.html',
        emailVerificationUrl: '/content/www/us/en/my-intel/email-
verification.external.html',
        aboutToExpireEmailUrl: '/content/www/us/en/my-intel/email-
verification.html',
        renewalUrl: '/content/www/us/en/secure/technology-provider/forms/renew-
technology-provider-membership.html',
        limitedUrl: '/content/www/us/en/resellers/limited-status-secondary.html',
        isaPRMDashBoardURL: '/content/www/us/en/secure/partner/solutions-
alliance/overview.html',
        itpPRMDashBoardURL: '/content/www/us/en/secure/partner/technology-
provider/iot/overview.html',
        itpisaPRMDashBoardURL:
'/content/www/us/en/secure/partner/iot-itp-isa/overview.html',
        isaRenewalURL: '/content/www/us/en/secure/partner/forms/solutions-
alliance-renewal.html',
        primaryPostLaunchURL: 'https://partner.intel.com/s/post-launch-primary',
        nonPrimaryPostLaunchURL: 'https://partner.intel.com/s/post-launch-non-
primary',
        idpUrl:
'https://sfederation.intel.com/federation2/sp/WebExperienceManagementSolution
onAEMforIntel/d3d3LmludGVsLmNvbQ%3D%3D'
    };

```

```

    if (!isLoggedIn && ((document.domain.indexOf("thailand") == -1 &&
document.domain.endsWith(".intel.com")) ||
document.getElementById("recode50header") != null) && (navigator != null &&
navigator.userAgent.indexOf("CloudManagerTest") == -1)) {
        try {
            var xmlhttp = new XMLHttpRequest();
            xmlhttp.open('HEAD', 'https://sfederation.intel.com/federation/status.asp',
false);
            xmlhttp.withCredentials="true";
            xmlhttp.send();
            if (200 == xmlhttp.status) {
                var currentUrl = window.location.href;
                var cookiename = "IGHFtarget";
                var samlcookieValue = cookiename + "=" +
encodeURIComponent(currentUrl) + ";secure;path=/;domain=.intel.com";
                document.cookie= samlcookieValue;
                window.location.href =
'https://sfederation.intel.com/federation2/sp/WebExperienceManagementSolution
onAEMforIntel/d3d3LmludGVsLmNvbQ%3D%3D';
            }
        } catch(error) {
        }
    }
}

```

```

</script>
<script defer="" src="/content/dam/www/global/network.js"
type="text/javascript"></script>

```

```
<script id="myinteldrpdwn-template" type="text/x-handlebars-template">
  <section class="myintel-tools-content" role="region"
    aria-label="My Intel">

    <div class="panel-header force-background solid brand-very-dark-gray my-
intel-menu">
      <button type="button" class="icon close pull-right" data-igm-search-
toggle="" aria-label="Close">
```

```

        tabindex="0" data-wap="" data-wap_ref="myintel-navmenu-
closing">
        <span></span>
    </button>
    <ul class="nav nav-tabs component">

```

```

        <li role="presentation" class="active" data-step='1' data-title='My
Intel Dashboard and My Tools' data-intro='<p>Click here to access the My Intel
Dashboard from any Intel.com page. From here you can also access your
Subscriptions page, as well as your personalized list of tools.</p>'>
        <a href="#my-intel" role="tab" tabindex="0">My Intel<span
            class="fa fa-user"></span></a>
    </li>
</ul>
</div>

```

```

<div class="my-intel-panel-body tab-content">

    <div role="tabpanel" class="tab-pane fade in active" id="my-intel">
        <ul class="myintel-links">
            {{#each myintelpagelinks}}
            <li data-agsrole="{{{agsrole}}}"
                data-blacklistedagsrole="{{{blacklistedagsgroupname}}}"
                data-isinternal="{{{displayOnlyInternal}}}"
                data-isexternal="{{{displayOnlyExternal}}}"
                class="{{{class}}}">
                <a target="{{{target}}}"
                    href="{{{href}}}" tabindex="0">{{{label}}}</a>
            </li>
            {{/each}}
        </ul>
        <div class="tools-pane component" data-component="myintel-tools"
data-component-id="1">
            <h5 class="my-intel-tools">My Tools</h5>

            <ul class="myintel-links">
                {{#each mytoollinks}}
                <li class="myintellink"
                    data-isinternal="{{{displayOnlyInternal}}}"
                    data-isexternal="{{{displayOnlyExternal}}}">
                    <h3 style="display:none;">{{{agsgroupname}}}</h3>
                    <h4
style="display:none;">{{{blacklistedagsgroupname}}}</h4>
                    <a tabindex="0" href="{{{linkurl}}}" target="_blank"
rel="noopener noreferrer" title="">{{{linktext}}}</a>

```

```

                {{#if tooltip}}
                <a class="fa fa-help-circled" tabindex="0" data-
toggle="tooltip" data-html="true"
                data-title="{{tooltip}}" data-placement="bottom" data-
wap_ref="tooltip:{{linktext}}"><span
class="sr-only">{{tooltip}}</span></a>
                {{/if}}
            </li>
        {{/each}}
    </ul>
</div>
</div>

```

```

</div>
</section>
</script>

```

```

<span id="logged-in-scenario" class="hidden">

```

```

<button type="button" title="My Intel" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" class="nav-link-icon nav-
link-icon-toggle collapsed" data-target="#panel-signedin" aria-expanded="false"
aria-controls="panel-signedin" data-mega-control="signedin">
    <span class="sr-only">My Intel</span>
    <span class="fa intel-user-checked-o icon-toggle-off"></span>
    <span class="fa intel-user-checked icon-toggle-on"></span>
</button>

```

```

<div class="mega-panel panel-layout-signed-in collapse" id="panel-signedin">
    <div class="mega-panel-wrap">
        <div class="mega-panel-body">
            <div class="panel-content flex-content-wrap">

```

```

                <!-- MyIntel Section -->
                <!-- ----- -->
                <div class="panel-item hidden" id="myIntelPageLinks">
                    <a id="myIntelPageLinksHeader" class="nav-l3 has-border has-
link"></a> <!-- {{#if heading.onState}} selected{{/if}} {{#if
heading.onStateParent}} selected-parent{{/if}} -->
                    <div class="panel-item-content">
                        <ul id="myIntelPageLinksItemList" class="panel-links nav-l4-list
list-unstyled">

```

```

                            </ul>
                        </div>
                    </div>

```

```

                <!-- My Tools Section -->
                <!-- ----- -->
                <div class="panel-item col-span-2" id="myIntelTools">

```

```

                    <div class="nav-l3">
                        My Tools

```

```

</div>

<div class="panel-item-content">
  <!--
    Note: right now this panel (myTools) has only one column/ul
    if more columns are needed, remove below's 'w-auto' class
  -->
  <ul class="panel-links nav-l4-list list-unstyled w-auto"
id="mytools-ul">

    <!-- this 'li' will be used as the template to populate this
section from the js -->
    <li class="hidden">
      <a class="nav-l4"></a>

      <button class="btn-tooltip-trigger hidden" data-
toggle="tooltip" data-placement="bottom" title="" data-original-title="">
        <span>?</span>
      </button>
    </li>
  </ul>
</div>
</div>

<div class="item-actions">
  <button type="button" class="btn btn-primary"
data-sso-uri="https://federatesso.intel.com" data-logout-uri="" data-
wap="{&quot;linktype&quot;:&quot;logout&quot;}"
onclick="intel.signinsimplify.signOut()">Sign Out</button>
</div>
</div>
</div>
</div>

</span>

```

```
<button type="button" title="Language Selector" data-  
wap="{&quot;linktype&quot;:&quot;level1&quot;}" class="nav-link-icon nav-  
link-icon-toggle collapsed" data-target="#panel-language-selector" aria-  
label="USA (English)" aria-expanded="false" aria-controls="panel-language-  
selector" data-mega-control="language-selector">  
  <span class="fa-intel-globe-o icon-toggle-off"></span>  
  <span class="fa-intel-globe icon-toggle-on"></span>  
  <span class="nav-link-icon-label">USA (English)</span>  
</button>
```

```
<div class="mega-panel panel-layout-language collapse" id="panel-language-  
selector" aria-expanded="false" aria-selected="false" aria-collapsed="true">  
  <div class="mega-panel-wrap">  
    <div class="mega-panel-body">  
      <div class="mega-panel-heading">  
        <h2 class="nav-l2">  
          Select Your Region  
        </h2>  
      </div>  
      <div class="panel-content flex-content-wrap">  
  
        <div class="panel-item col-span-2 col-span-2-md">  
          <!-- region.countryName is actually region name -->  
          <h3 class="nav-l3 no-border">Asia Pacific</h3>  
          <ul class="list-unstyled panel-links nav-l4-list columns-2">
```

```
    <li class="lang-option">
```

```
      <a class="nav-l4" data-locale="en_xa"  
href="https://www.intel.sg/content/www/xa/en/homepage.html?  
countrylabel=Asia Pacific">  
        Asia Pacific (English)  
      </a>  
    </li>
```

```
  <li class="lang-option">
```

```
        <a class="nav-l4" data-locale="en_au"
href="https://www.intel.com.au/content/www/au/en/homepage.html">
            Australia (English)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="en_in"
href="https://www.intel.in/content/www/in/en/homepage.html">
            India (English)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="id_id"
href="https://www.intel.co.id/content/www/id/id/homepage.html">
            Indonesia (Bahasa Indonesia)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="ja_jp"
href="https://www.intel.co.jp/content/www/jp/ja/docs/programmable/683865/
current/accessing-remote-system-upgrade-through.html">
            Japan (日本)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="ko_kr"
href="https://www.intel.co.kr/content/www/kr/ko/homepage.html">
            Korea (한국)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="zh_cn"
href="https://www.intel.cn/content/www/cn/zh/docs/programmable/683865/
current/accessing-remote-system-upgrade-through.html">
            Mainland China (中国大陆)
        </a>
    </li>
```

```
<li class="lang-option">
```



```
        <a class="nav-l4" data-locale="zh_tw"
href="https://www.intel.com.tw/content/www/tw/zh/homepage.html">
            Taiwan (繁體中文)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="th_th"
href="https://www.thailand.intel.com/content/www/th/th/homepage.html">
            Thailand (ไทย)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="vi_vn"
href="https://www.intel.vn/content/www/vn/vi/homepage.html">
            Vietnam (Tiếng Việt)
        </a>
    </li>
```

```
</ul>
</div>
```

```
<div class="panel-item col-span-2 col-span-2-md">
    <!-- region.countryName is actually region name -->
    <h3 class="nav-l3 no-border">Europe</h3>
    <ul class="list-unstyled panel-links nav-l4-list columns-2">
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="fr_fr"
href="https://www.intel.fr/content/www/fr/fr/homepage.html">
            France (Français)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="de_de"
href="https://www.intel.de/content/www/de/de/homepage.html">
            Germany (Deutsch)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="en_ie"
href="https://www.intel.ie/content/www/ie/en/homepage.html">
            Ireland (English)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="it_it"
href="https://www.intel.it/content/www/it/it/homepage.html">
            Italy (Italiano)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="pl_pl"
href="https://www.intel.pl/content/www/pl/pl/homepage.html">
            Poland (Polski)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="ru_ru"
href="https://www.intel.ru/content/www/ru/ru/homepage.html">
            Russia (Русский)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="es_es"
href="https://www.intel.es/content/www/es/es/homepage.html">
            Spain (Español)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="tr_tr"
href="https://www.intel.com.tr/content/www/tr/tr/homepage.html">
            Turkey (Türkçe)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="en_uk"
href="https://www.intel.co.uk/content/www/uk/en/homepage.html">
            United Kingdom (English)
        </a>
    </li>
```

```
</ul>
</div>
```

```
<div class="panel-item">
    <!-- region.countryName is actually region name -->
    <h3 class="nav-l3 no-border">Latin America</h3>
    <ul class="list-unstyled panel-links nav-l4-list">
```

```
<li class="lang-option">
```

```

        <a class="nav-l4" data-locale="es_xl"
href="https://www.intel.la/content/www/xl/es/homepage.html?
countrylabel=Argentina">
            Argentina (Español)
        </a>
    </li>

```

```

    <li class="lang-option">

```

```

        <a class="nav-l4" data-locale="pt_br"
href="https://www.intel.com.br/content/www/br/pt/homepage.html">
            Brazil (Português)
        </a>
    </li>

```

```

    <li class="lang-option">

```

```

        <a class="nav-l4" data-locale="es_xl"
href="https://www.intel.la/content/www/xl/es/homepage.html?
countrylabel=Chile">
            Chile (Español)
        </a>
    </li>

```

```

    <li class="lang-option">

```

```

        <a class="nav-l4" data-locale="es_xl"
href="https://www.intel.la/content/www/xl/es/homepage.html?
countrylabel=Colombia">
            Colombia (Español)
        </a>
    </li>

```

```

    <li class="lang-option">

```

```

        <a class="nav-l4" data-locale="es_xl"
href="https://www.intel.la/content/www/xl/es/homepage.html?
countrylabel=Latin America">
            Latin America (Español)
        </a>
    </li>

```

```

    <li class="lang-option">

```

```

        <a class="nav-l4" data-locale="es_xl"
href="https://www.intel.la/content/www/xl/es/homepage.html?
countrylabel=Mexico">
            Mexico (Español)
        </a>
    </li>

```

```

    <li class="lang-option">

```

```
        <a class="nav-l4" data-locale="es_xl"
href="https://www.intel.la/content/www/xl/es/homepage.html?
countrylabel=Peru">
```

```
        Peru (Español)
```

```
    </a>
```

```
</li>
```

```
</ul>
```

```
</div>
```

```
<div class="panel-item">
```

```
    <!-- region.countryName is actually region name -->
```

```
    <h3 class="nav-l3 no-border">Middle East/Africa</h3>
```

```
    <ul class="list-unstyled panel-links nav-l4-list">
```

```
        <li class="lang-option">
```

```
        <a class="nav-l4" data-locale="he_il"
href="https://www.intel.co.il/content/www/il/he/homepage.html">
        Israel (עברית)
```

```
    </a>
```

```
</li>
```

```
</ul>
```

```
</div>
```

```
<div class="panel-item">
```

```
    <!-- region.countryName is actually region name -->
```

```
    <h3 class="nav-l3 no-border">North America</h3>
```

```
    <ul class="list-unstyled panel-links nav-l4-list">
```

```
        <li class="selected lang-option">
```

```
        <a class="nav-l4" data-locale="en_us"
href="https://www.intel.com/content/www/us/en/homepage.html">
            United States (English)
        </a>
    </li>
```

```
    <li class="lang-option">
```

```
        <a class="nav-l4" data-locale="en_ca"
href="https://www.intel.ca/content/www/ca/en/homepage.html">
            Canada (English)
        </a>
    </li>
```

```
    <li class="lang-option">
```

```
        <a class="nav-l4" data-locale="fr_ca"
href="https://www.intel.ca/content/www/ca/fr/homepage.html">
            Canada (Français)
        </a>
    </li>
```

```
    </ul>
</div>
```

```
    </div>
</div>
</div>
</div>
```

```
<!-- END: NON-sign in panel -->
```





```

    <button type="button" title="Search intel.com" class="nav-link-icon toggle-
search collapsed" data-target="#simplify-search" aria-expanded="false" aria-
controls="simplify-search" data-mega-control="global-search">
    <span class="sr-only">Toggle Search</span>
    <span class="fa-global-search"></span>
</button>
<div class="mega-panel mega-search-panel collapse" id="simplify-search"
aria-expanded="false" aria-selected="false" aria-collapsed="true" document-
height="true">
    <div class="mega-panel-wrap">
        <div class="mega-panel-body">
            <div class="panel-content">
                <div class="search-component search-component" data-igm-
search-content="">
                    <form class="mega-search-form search item" data-igm-search-
control="" name="hpsform-new" id="hpsform-new"
action="/content/www/us/en/search.html" role="search" onsubmit="return
inputSearch()">
                        <button type="submit" class="btn-mega-search icon" aria-
label="Search" tabindex="-1">
                            <span class="sr-only">Search</span>
                            <span class="fa-global-search"></span>
                        </button>

```

```

                    <label for="mobile-search">
                        <span class="sr-only">&lt;</span>
                        <input id="toplevelcategory" name="toplevelcategory"
type="hidden" value="none">
                        <input id="query" name="query" type="hidden"
value="">
                        <input data-tabindex="1" class="form-control" data-
search-input="" id="mobile-search" name="keyword" type="text" data-igm-
search-input="" title="Search" autocomplete="off" data-target-result="#igm-
search-result" aria-controls="mega-results-overlay" aria-label="Search
Intel.com" placeholder="Search Intel.com">
                    </label>

```

```

                <button type="button" id="cls-btn-advanced" class="btn-
mega-close fa-cancel-1 hide-flyout" aria-label="Clear Search Term" data-clear-
input="clear-input">
                    <span class="sr-
only">Close Search Panel</span>
                </button>
                <button type="button" id="advanced-btn" class="btn-
advance-filter fa-sliders hide-flyout" aria-label="Advanced Search Panel" data-
mega-advanced-search="advanced-search">

```

```

        <span class="sr-only">Advanced Search</span>
    </button>

</form>
<!--
'hidden' class is conditionally removed on load @ intel.search-
dropdown.js
-->
<div class="results-overlay mega-results-overlay search-quick-
links" aria-live="off" id="mega-results-overlay" data-
component="wa_skip_track">

    <div class="mega-close-container">
        <button aria-
label="Close search panel" class="btn-icon no-style close-result-toggle flyout-
close" data-mega-close="global-search">
            close
        </button>
    </div>

    <!-- Search Result Typeahead -->
    <div class="results-typeahead collapse" id="igm-search-
result" data-igm-search-results="">
        <div class="overlay-content">
            <!--<h3>Top Results </h3>-->
            <!-- added content-quick-search class -->
            <div class="content-quick-search">
            </div>
        </div>
        <div class="search-info">
            <a href="javascript:void();" class="login-toggle" data-
activate-mega-control="signin">
                Sign In</a> to access restricted content
        </div>
    </div>
    <!-- Recent Searches: 1) display default search info if no search
terms is available -->
    <!-- Recent Searches: 2) display recenter terms when available
and hide default search info -->
    <div class="results-recent collapse" data-igm-search-
related="">
        <div>
            <!-- default search info -->
            <div class="content-search-block content-search-info">
                <h3>Using Intel.com Search</h3>
                <p>You can easily search the entire Intel.com site in
several ways.</p>
                <ul>
                    <li>
                        Brand Name:
                        <strong>
                            Core i9

```

```

        </strong>
    </li>
    <li>
        Document Number:
        <strong>
            123456
        </strong>
    </li>
    <li>
        Code Name:
        <strong>
            Alder Lake
        </strong>
    </li>
    <li>
        Special Operators:
        <strong>
            "Ice Lake", Ice AND Lake, Ice OR Lake, Ice*
        </strong>
    </li>
</ul>
</div>
<!-- quick links is always visible on the recents overlay -->
<div class="content-search-block content-quick-links">
    <h3>Quick Links</h3>
    <p>You can also try the quick links below to see results
for most popular searches.</p>
    <ul>
        <!--<li>
            <a class="quick-link" rel="noopener noreferrer"
                href=https://ark.intel.com?
wapkw=quicklink:product-specifications>
                Product Specifications
            </a>
        </li>-->
        <li>
            <a class="quick-link" rel="noopener noreferrer"
href="https://www.intel.com/content/www/us/en/products/overview.html?
wapkw=quicklink:products">
                Product Information
            </a>
        </li>
        <li><a class="quick-link" rel="noopener noreferrer"
href="https://www.intel.com/content/www/us/en/support.html?
wapkw=quicklink:support">
                Support
            </a>
        </li>
        <li>
            <a class="quick-link" rel="noopener noreferrer"
href="https://downloadcenter.intel.com?wapkw=quicklink:download-center">
                Drivers & Software
            </a>
        </li>
    </ul>

```

```

        </ul>
    </div>
    <!-- recent search terms -->
    <div class="results-overlay results-recent results
component content-search-block content-recent" data-
component="wa_skip_track" data-component-id="1">
        <div class="overlay-content recent-searches-terms
hidden">
            <h3>Recent Searches</h3>
        </div>
    </div>
</div>
<div class="search-info">
    <a href="javascript:void();" class="login-toggle" data-
activate-mega-control="signin">
        Sign In</a> to access restricted content
    </div>
</div>

    <div class="results-advanced collapse" data-igm-advanced-
search="">
        <div
class="overlay-content">
            <!-- default search info -->

            <div class="content-search-block content-search-info component" data-
component="wa_skip_track" data-component-id="1">

                <h3>Advanced Search</h3>

                <div class="controls-wrapper">
                    <div class="controls">
                        <div class="input-group select-control">
                            <select class="documentation-card-version-select"
name="find-results" id="find-results">
                                <option value="All of these terms"
selected="">All of these terms</option>
                                <option value="Any of these terms">Any of
these terms</option>
                                <option value="Exact term only">Exact term
only</option>
                            </select>
                            <label class="select-label" for="find-results">Find
results with</label>

```

</div>

```
<div class="input-group select-control">
  <select class="selectAdvanced"
name="show-results-from" id="show-results-from">
    <option value="allResults"
selected="" aria-label="all Results">
      All Results
    </option>
    <option value="Products" aria-
label="Products">
      Product Information
    </option>
    <option value="Support">
      Support
    </option>
    <option value="Downloads">
      Drivers & Software
    </option>
    <option value="Developers">
      Documentation & Resources
    </option>
    <!-- <option
value="Solutions">Solutions</option>-->
    <option value="Partners">
      Partners
    </option>
    <option value="forums">
      Communities
    </option>
    <option value="Corporate">
      Corporate
    </option>
  </select>
```

```
<label class="select-label" for="show-results-
from">Show results from</label>
```

</div>

</div>

<div class="controls">

<h3>Only search in</h3>

<div class="input-group" aria-label="Only Search In">

<label for="search\_title">

type="checkbox"><input name="search\_title" id="search\_title"

Title</label>

<label for="search\_description">

<input name="search\_description"  
id="search\_description" type="checkbox">

Description</label>

<label for="search\_id">

<input name="search\_id" id="search\_id"  
type="checkbox">Content ID</label>

</div>

<button role="button" type="button" class="btn btn-  
primary" id="advanced-search-submit" data-wap="" data-wap-ref="search-  
button">

Search

</button>

</div>

</div>

</div>

</div>  
<div

class="search-info">

<a

href="javascript:void();" class="login-toggle" data-activate-mega-  
control="signin">Sign in</a> to access

restricted content.

</div>  
</div>

</div>

</div>

</div>

</div>

</div>

</div>

<script type="text/javascript">

```

var global_config = {
  "icsUrl": "https://supporttickets.intel.com/services/oauth2/authorize?
response_type=token&client_id=3MVG9QDx8IX8nP5Rh0X3B7gohGtUh8sjFQ8Tw_
U8sS9_PoVrupDFwZ_nwLcze2n64IGBbGchyUb7_9W8n8pAV&redirect_uri=https
%3A%2F%2Fwww.intel.com%2Fcontent%2Fwww%2Fus%2Fen%2Fsecure%2Fmy-
intel%2Ftoken.html",
  "ipsUrl": "https://premiersupport.intel.com/IPs/services/oauth2/authorize?
response_type=token&client_id=3MVG9xOCXq4ID1uEa5F2ICYAp6mmKvTMIKbMI
rsMKShY2oOqs1ETvPRjwmhoPivHd9_U53EzmiyYxn3nVpA9J&redirect_uri=https
%3A%2F%2Fwww.intel.com%2Fcontent%2Fwww%2Fus%2Fen%2Fsecure%2Fmy-
intel%2Ftoken.html"
};

```

```

function inputSearch() {
  if (globalSearch.advancedSearchFlag == 'true') {
    var findResults = $("#find-results").val();
    var showResults = $("#show-results-from").val();
    var titleIsChecked = $("#search_title").is(":checked");
    var descriptionIsChecked = $("#search_description").is(":checked");
    var idIsChecked = $("#search_id").is(":checked");
    var searchInputValue = $("#mobile-search").val();

    if (findResults != 'All of these terms' || showResults != "allResults" ||
titleIsChecked || descriptionIsChecked || idIsChecked) {
      if (searchInputValue) {
        return advancedSearch();
      }
      else {
        return INTEL_TYPE_AHEAD.onSubmitHps('Search',
'/content/www/us/en', 'en_US');
      }
    }

    else {
      return INTEL_TYPE_AHEAD.onSubmitHps('Search', '/content/www/us/en',
'en_US');
    }
  }
  return INTEL_TYPE_AHEAD.onSubmitHps('Search', '/content/www/us/en',
'en_US');
}

```

```

var globalSearch = globalSearch || {};
globalSearch = {
  sharePointSearchPromote:true,
  searchProvider: 'coveo',
  baseSearchQuery: 'localecode:"en_US" NOT generic1:"false" ',
  langRootPath: '/content/www/us/en',
  headingTxt: 'Best Match',
  locale: 'en_US',
  typeAheadUrl: 'http://search.intel.com/SearchLookup/DataProvider.ashx',

```



```

        bestMatchUrl:
'https://platform.cloud.coveo.com/rest/search/v2/querySuggest',
        searchRealm: 'Default',
        bestMatchQ1: 'NAR',
        bestMatchQ2: 'en',
        bestMatchQ11: 'sptitle,description,url,thumbnailurl,reimaginerootlevel',
        progId: '',
        useEMTTags: true,
        defaultPage: 'search.html',
        ighfToken: 'xx6e698e8b-65ad-446c-9030-666d0ec92d15',
        searchHub: 'enterpriseSearch',
        newNavRedesign: true,
        advancedSearchFlag : 'true',
        gtvLabels: {
            suggested: "",
            products: "Product Information",
            support: "Support",
            developers: "Developers",
            drivers: "Drivers",
            forums: "Forums",
            specifications: "Specifications",
            download: "",
            searchesRelatedTo: "",
            search: "Search Intel.com",
            inLabel: "in",
            searchSupport: "Search Intel® Support",
            intelcom: "",
            forLabel: "for",
            allResults: "All Results",
            show: "Show",
            results: "Results"
        },
        mobileResults: "5",
        laptopResults: "10",
        EDCProgramIdentifier: "false"
    };
</script>
        </div>
        <!-- END MOBILE TOGGLE buttons -->
    </div>
</nav>
</header>
</div>

```

```
<div id="secondary-nav-1" class="component secondary-nav" data-  
component="subnavigation-breadcrumb" data-component-id="1">
```

```
<div class="default-breadcrumb breadcrumb-bar-wrap-outer onlyTitle">
  <nav role="" aria-label="Breadcrumbs" class="breadcrumb-bar-wrap
initialized fullbleed-mode" style="width: 390px;">
    <ol class="breadcrumb-bar scrolling-wrapper" aria-hidden="false">
```

```
<!-- Breadcrumb for Support Templates -->
```

```
      <li class="menuitem breadcrumb-current-page active" aria-
current="page">
        <div class="leaf-node current-page"><span>3.5. Accessing
Remote System Upgrade through User Logic</span></div>
      </li>
```

```
    </ol>
    <button title="previous item" class="nav-paddle nav-prev fa-angle-
left" type="button" style="display: none;"></button>
    <button title="next item" class="nav-paddle nav-next fa-angle-right"
type="button" style="display: inline-block; right: 0px;"></button>
  </nav>
```

```
</div>
```

```
</div>
```

```

<script type="text/javascript">
  intel = intel || {};
  intel.utils = intel.utils || {};
  intel.utils.breadcrumbSource = "onlyTitle";
  intel.utils.isDefaultSecondaryNavNeeded = "true";
  intel.utils.displayTitle = "3.5. Accessing Remote System Upgrade through User
Logic";
</script>

```

```

<script type="text/javascript">
  var globalHeader = globalHeader || {};
  globalHeader = {
    currentPath:
"/content/www/us/en/docs/programmable/683865/current/accessing-remote-
system-upgrade-through",
    lanloc: "/us/en",
    lanLoc: "US/en",
    helpformurl: "",
    intelHeaderFooterVersion: "menu3",
    megaMenuPath: "/content/data/globalelements/US/en/globalnav4",
    globalBannerPath: "/content/data/globalelements/US/en/sitewide-
banner-placeholder",
    subMenuPath: "",
    isCHF:false,
    secureRedirectURL: "",
    excludeGlobalNav4: "false",
    allowSubNavigationBreadcrumb: "true",
    breadcrumbParentPagePath: "",
    myintelHeaderLinkAgs: "RDC Basic View,RDC BASIC View,RDC
Privileged Full,Intel Registration Center Access,IDZ-User,Basic Intel Registration
Role,Intel Developer Zone User,Khoros Customer Community Access,PSG
External Basic B2B Bundle,PSG External Customer Notification Subscriptions,PSG
External Digital Power Configuration Download,PSG External Material Declaration
Datasheet Download,PSG External Online Events Registration,PSG External
Quartus Web Edition license request,PSG External MAX PLUS II Baseline License
Request,PSG External Reference Design Request,PSG External IP Evaluation
Request,PSG External IP Early Access Request,PSG External Reference Designs
downloads,PSG External MAX PLUS II software downloads,PSG External Download
Center,PSG External University Program,PSG External Training,PSG External Self
Service Licensing Center,IRC User Access~RDC Privileged Full,Sales-PRM-
External-Customers Employee-User~RDC Basic View,RDC BASIC View,RDC
Privileged Full,IDZ-User,Basic Intel Registration Role,Intel Developer Zone

```

User,Khoros Customer Community Access,PSG External Basic B2B Bundle,PSG External Customer Notification Subscriptions,PSG External Digital Power Configuration Download,PSG External Material Declaration Datasheet Download,PSG External Online Events Registration,PSG External Quartus Web Edition license request,PSG External MAX PLUS II Baseline License Request,PSG External Reference Design Request,PSG External IP Evaluation Request,PSG External IP Early Access Request,PSG External Reference Designs downloads,PSG External MAX PLUS II software downloads,PSG External Download Center,PSG External University Program,PSG External Training,PSG External Self Service Licensing Center,IRC User Access",  
}  
</script>

```
<script src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/nav.min.js" defer=""></script>
<script src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/secondaryNav.min.js" defer=""></script>
</div>
```

```
<section data-scroll-track="false">
  <div class="container">
    <div class="row">
      <div class="col-xs-12 pull-right persistent-cta-integration-globalNav"
id="alertMsg">
        <div id="alertSupport">
          <div class="browser_detect browser_detect_not_fixed"
id="browserdetectid" style="display:none;">
            <p>The browser version you are using is not recommended for
this site.<br>Please consider upgrading to the latest version of your browser by
clicking one of the following links.</p>
            <div class="browser_types">
              <ul>

                <li><a
href="https://support.apple.com/downloads/safari">Safari</a></li>

                <li><a
href="https://support.google.com/chrome/answer/95346?hl=en">Chrome</
a></li>

                <li><a
href="https://www.microsoft.com/en-us/edge">Edge</a></li>

                <li><a
href="https://www.mozilla.org/en-US/firefox/new/">Firefox</a></li>

              </ul>
            </div>
          </div>
        </div>
      </div>
    </div>
  </section>
```

```
        </div>
    </div>
</div>
</div>
</div>
</section>

<main id="primary-content">
```

```
<link rel="stylesheet"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
udeDocumentationDetail.min.css" type="text/css">
<script src="/etc.clientlibs/clientlibs/granite/jquery.min.js"></script>
<script src="/etc.clientlibs/clientlibs/granite/utils.min.js"></script>
<script src="/etc.clientlibs/clientlibs/granite/jquery/granite.min.js"></script>
<script src="/etc.clientlibs/foundation/clientlibs/jquery.min.js"></script>
<script src="/etc.clientlibs/settings/wcm/clientlibs/ver/220720/foundation/
jquery.min.js"></script>
<script src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/
pages/udeDocumentationDetail.min.js"></script>
```

```
<div class="page-content">
    <div class="marquee">
```

```
<input type="hidden" name="ude-GroupId" id="DocumentationGroupId"
value="683865">
<input type="hidden" name="ude-bookId-node"
id="DocumentationPublicationId" value="666495">
<input type="hidden" name="ude-search"
id="DocumentationSearchUrlHiddenField"
value="/content/www/us/en/docs/programmable/683865/current">
```

```
<div id="marquee-1" class="component intel-ws theme-dark-default marquee-
documentation-detail force-background solid brand-primary" data-
component="marquee" data-component-id="1">
```

```
    <div class="container">
        <div class="row">
            <div class="col-xs-12">
                <p></p>
            </div>
        </div>
        <div class="row">
            <div class="col-xs-12 col-md-8">
                <h2 class="h1">Intel® MAX® 10 FPGA Configuration User
Guide</h2>
            </div>
```

```
        <div class="col-xs-12 col-md-4 cta-col bookmark-able">
```

```
            <a href="https://cdrdv2.intel.com/v1/dl/getContent/666495?
fileName=ug-683865-666495.pdf" class="btn btn-secondary">Download</a>
```

```
            <button data-wap="" data-wap_ref="bookmark-button"
class="bookmark-toggle btn btn-secondary"
onclick="toggleBookmark('bookmarkinput')" onload="onLoad()" style="display:
none;">Bookmark<span class="sr-only"></span>
                <input type="checkbox" id="bookmarkinput" tabindex="-1">
```

```
        </button>
```

```
    </div>
```

```
</div>
```

```
<div class="row collection-row hidden-info" style="display: none;">
    <div class="col-xs-12 in-collections">
        <span class="collections-label"></span>
```

```

        <div class="collections">
        </div>
    </div>
</div>
<div class="row info-row hidden-info">

    <div class="col-xs-12 col-md-8">

        <div class="info-col">

            <span class="label">ID</span>
            <span class="value">683865</span>

        </div>

        <div class="info-col">
            <span class="label">Date</span>
            <span class="value">5/26/2022</span>
        </div>

        <div class="marquee-search">
            <input type="hidden" name="currentPageVersion"
id="CurrentPageVersionHiddenField" value="current">
            <label for="marquee-search-select" class="marquee-search-select-
label">
                <span>Version</span>

                <label class="single_version">current</label>

            </label>
        </div>
        <div class="additional-info">
            <span>Public</span>
        </div>

    </div>

</div>
<div class="row showButtonRow">
    <div class="view-more-button">

        <button onclick="showMore()" class="show-more-show-less show-
more">View More<span class="fa-angle-down"></span></button>
        <button onclick="showLess()" class="show-more-show-less see-less
hidden-info">See Less<span class="fa-angle-up"></span></button>

    </div>
</div>
</div>
</div>

```



</div>

```
<div class="intel-ws ude ude-documentation-details">
  <div class="ude-documentation-details-container upe-spynav-content
container">
    <div class="ude-documentation-details-main row">
      <div class="toc tableOfContent">
```

```
<div id="tableOfContent-1" class="component ude-documentation-details-nav-
wrapper col-xs-12 col-lg-3 " data-component="tableOfContent" data-component-
id="1">
```

```
  <div class="ude-documentation-details-mobile-navigation">
```

```
    <div class="row ude-document-details-info hidden-lg hidden-xl">
```

```
<div id="internalUser" class="col-md-12 col-xs-12" style="display: none;">
  <div class="col-lg-10 col-xs-12">
```

```
    <p><span class="disclaimer">Visible to Intel only — </span>
```

```
      <span class="label">GUID:</span>
```

```
      <span class="info">sss1396067287706</span></p>
```

```

      <p><span class="label"></span> <span
class="info">Ixiasoft</span>
      </p>
```

```

</div>
<div class="col-lg-2 col-xs-12">
  <p class="cta-item">
    <a class="btn btn-tertiary"
href="/content/www/us/en/secure/design/internal/content-details.html?
DocID=""><span>View Details</span></a>
  </p>
</div>
</div>

</div>

<div class="filter-dropdown-search-wrapper component disabled" data-
component="wa_skip_track" data-component-id="1">
  <label for="documentation-details-search" class="filter-dropdown-
search-label">
    <input class="filter-dropdown-search" type="search"
id="documentation-details-search" aria-label="Search for filter" size="10"
placeholder="Search this document">
    <button class="btn-cancel-search" data-close="documentation-
details-search"><span class="sr-only">Close Filter Modal</span><span
class="fa-cancel-1"></span></button>
  </label>
</div>
<a href="#table-of-contents" class="btn btn-secondary hub-toggle
">Document Table of Contents</a>
<div id="table-of-contents" class="hub-content off-screen">
  <div class="hub-content-header">
    <div class="container">
      <a class="back-hub-link" href="#">Document Table of
Contents</a>
    </div>
  </div>
  <div class="hub-content-wrap">

    <a
href="/content/www/us/en/docs/programmable/683865/current/fpga-
configuration-overview.html#dropdown-1-0" class="hub-toggle"><span
class="hub-toggle-content">1. Intel® MAX® 10 FPGA Configuration
Overview</span></a>

    <a
href="/content/www/us/en/docs/programmable/683865/current/fpga-
configuration-schemes-and-features.html#dropdown-1-1" class="hub-
toggle"><span class="hub-toggle-content">2. Intel® MAX® 10 FPGA
Configuration Schemes and Features</span></a>

    <a
href="/content/www/us/en/docs/programmable/683865/current/fpga-
configuration-design-guidelines.html#dropdown-1-2" class="hub-toggle"><span
class="hub-toggle-content">3. Intel® MAX® 10 FPGA Configuration Design
Guidelines</span></a>

```

[<a href="/content/www/us/en/docs/programmable/683865/current/fpga-configuration-ip-core-implementation.html#dropdown-1-3" class="hub-toggle"><span class="hub-toggle-content">4. Intel® MAX® 10 FPGA Configuration IP Core Implementation Guides</span></a>](/content/www/us/en/docs/programmable/683865/current/fpga-configuration-ip-core-implementation.html#dropdown-1-3)

[<a href="/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-references.html#dropdown-1-4" class="hub-toggle"><span class="hub-toggle-content">5. Dual Configuration Intel® FPGA IP Core References</span></a>](/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-references.html#dropdown-1-4)

[<a href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-core-references.html#dropdown-1-5" class="hub-toggle"><span class="hub-toggle-content">6. Unique Chip ID Intel® FPGA IP Core References</span></a>](/content/www/us/en/docs/programmable/683865/current/unique-chip-id-core-references.html#dropdown-1-5)

[<a href="/content/www/us/en/docs/programmable/683865/current/document-revision-history-for-the-fpga.html#dropdown-1-6" class="hub-toggle"><span class="hub-toggle-content">7. Document Revision History for the Intel® MAX® 10 FPGA Configuration User Guide</span></a>](/content/www/us/en/docs/programmable/683865/current/document-revision-history-for-the-fpga.html#dropdown-1-6)

</div>  
</div>

<div id="dropdown-1-1" class="hub-content off-screen">  
 <div class="hub-content-header">  
 <div class="container">  
 <a class="back-hub-link" href="/content/www/us/en/docs/programmable/683865/current/fpga-configuration-schemes-and-features.html">2. Intel® MAX® 10 FPGA Configuration Schemes and Features</a>  
 </div>  
 </div>  
<div class="hub-content-wrap">

[<a href="/content/www/us/en/docs/programmable/683865/current/configuration-schemes.html#dropdown-1-1-0" class="hub-toggle "><span class="hub-toggle-content">2.1. Configuration Schemes</span></a>](/content/www/us/en/docs/programmable/683865/current/configuration-schemes.html#dropdown-1-1-0)

[<a href="/content/www/us/en/docs/programmable/683865/current/configuration-features.html#dropdown-1-1-1" class="hub-toggle "><span class="hub-toggle-content">2.2. Configuration Features</span></a>](/content/www/us/en/docs/programmable/683865/current/configuration-features.html#dropdown-1-1-1)

[<a href="/content/www/us/en/docs/programmable/683865/current/configuration->" class="hub-toggle">](/content/www/us/en/docs/programmable/683865/current/configuration->)

details.html#dropdown-1-1-2" class="hub-toggle "><span class="hub-toggle-content">2.3. Configuration Details</span></a>

</div>  
</div>

<div id="dropdown-1-1-0" class="hub-content off-screen">  
 <div class="hub-content-header">  
 <div class="container">  
 <a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/configuration-schemes.html">2.1. Configuration Schemes</a>  
 </div>  
 </div>  
 <div class="hub-content-wrap">

<a  
href="/content/www/us/en/docs/programmable/683865/current/jtag-configuration.html#dropdown-1-1-0-0" class="hub-toggle"><span class="hub-toggle-content">2.1.1. JTAG Configuration</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/internal-configuration.html#dropdown-1-1-0-1" class="hub-toggle"><span class="hub-toggle-content">2.1.2. Internal Configuration</span></a>

</div>  
</div>

<div id="dropdown-1-1-0-0" class="hub-content off-screen">

<div class="hub-content-header">  
 <div class="container">  
 <a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/jtag-configuration.html">2.1.1. JTAG Configuration</a>  
 </div>  
 </div>  
 <div class="hub-content-wrap">

<a  
href="/content/www/us/en/docs/programmable/683865/current/jtag-pins.html#dropdown-1-1-0-0-0" class="hub-toggle"><span class="hub-toggle-content">2.1.1.1. JTAG Pins</span></a>

```
</div>
</div>
```

```
<div id="dropdown-1-1-0-1" class="hub-content off-
screen">
```

```
<div class="hub-content-header">
  <div class="container">
    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/internal-
configuration.html">2.1.2. Internal Configuration</a>
```

```
</div>
</div>
<div class="hub-content-wrap">
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/internal-
configuration-modes.html#dropdown-1-1-0-1-0" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.1. Internal Configuration Modes</span></a>
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory.html#dropdown-1-1-0-1-1" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.2. Configuration Flash Memory</span></a>
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/in-system-
programming.html#dropdown-1-1-0-1-2" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.3. In-System Programming</span></a>
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/initialization-
configuration-bits.html#dropdown-1-1-0-1-3" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.4. Initialization Configuration
Bits</span></a>
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/internal-
configuration-time.html#dropdown-1-1-0-1-4" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.5. Internal Configuration Time</span></a>
```

```
</div>
```

</div>

```
<div id="dropdown-1-1-0-1-1" class="hub-
content off-screen">
    <div class="hub-content-header">
        <div class="container">
            <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory.html">2.1.2.2. Configuration Flash Memory</a>
        </div>
    </div>
    <div class="hub-content-wrap">
```

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory-sectors.html#dropdown-1-1-0-1-1--0" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.2.1. Configuration Flash Memory
Sectors</span></a>
```

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory-programming-time.html#dropdown-1-1-0-1-1--1" class="hub-
toggle"><span class="hub-toggle-content">2.1.2.2.2. Configuration Flash
Memory Programming Time</span></a>
```

```

    </div>
</div>
```

```
<div id="dropdown-1-1-0-1-2" class="hub-
content off-screen">
    <div class="hub-content-header">
        <div class="container">
            <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/in-system-
programming.html">2.1.2.3. In-System Programming</a>
        </div>
    </div>
    <div class="hub-content-wrap">
```

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/isp-
clamp.html#dropdown-1-1-0-1-2--0" class="hub-toggle"><span class="hub-
toggle-content">2.1.2.3.1. ISP Clamp</span></a>
```

<a  
href="/content/www/us/en/docs/programmable/683865/current/real-time-isp.html#dropdown-1-1-0-1-2--1" class="hub-toggle"><span class="hub-toggle-content">2.1.2.3.2. Real-Time ISP</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/isp-and-real-time-isp-instructions.html#dropdown-1-1-0-1-2--2" class="hub-toggle"><span class="hub-toggle-content">2.1.2.3.3. ISP and Real-Time ISP Instructions</span></a>

</div>  
</div>

<div id="dropdown-1-1-1" class="hub-content off-screen">  
  <div class="hub-content-header">  
    <div class="container">  
      <a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/configuration-features.html">2.2. Configuration Features</a>  
    </div>  
  </div>  
  <div class="hub-content-wrap">

    <a  
href="/content/www/us/en/docs/programmable/683865/current/remote-system-upgrade.html#dropdown-1-1-1-0" class="hub-toggle"><span class="hub-toggle-content">2.2.1. Remote System Upgrade</span></a>

    <a  
href="/content/www/us/en/docs/programmable/683865/current/configuration-design-security.html#dropdown-1-1-1-1" class="hub-toggle"><span class="hub-toggle-content">2.2.2. Configuration Design Security</span></a>

    <a  
href="/content/www/us/en/docs/programmable/683865/current/seu-mitigation-

and-configuration-error.html#dropdown-1-1-1-2" class="hub-toggle"><span class="hub-toggle-content">2.2.3. SEU Mitigation and Configuration Error Detection</span></a>

<a href="/content/www/us/en/docs/programmable/683865/current/configuration-data-compression.html#dropdown-1-1-1-3" class="hub-toggle"><span class="hub-toggle-content">2.2.4. Configuration Data Compression</span></a>

</div>  
</div>

<div id="dropdown-1-1-1-0" class="hub-content off-screen">

<div class="hub-content-header">  
<div class="container">  
<a class="back-hub-link" href="/content/www/us/en/docs/programmable/683865/current/remote-system-upgrade.html">2.2.1. Remote System Upgrade</a>  
</div>  
</div>  
<div class="hub-content-wrap">

<a href="/content/www/us/en/docs/programmable/683865/current/remote-system-upgrade-flow.html#dropdown-1-1-1-0-0" class="hub-toggle"><span class="hub-toggle-content">2.2.1.1. Remote System Upgrade Flow</span></a>

<a href="/content/www/us/en/docs/programmable/683865/current/remote-system-upgrade-circuitry.html#dropdown-1-1-1-0-1" class="hub-toggle"><span class="hub-toggle-content">2.2.1.2. Remote System Upgrade Circuitry</span></a>

<a href="/content/www/us/en/docs/programmable/683865/current/user-watchdog-timer.html#dropdown-1-1-1-0-2" class="hub-toggle"><span class="hub-toggle-content">2.2.1.3. User Watchdog Timer</span></a>

<a href="/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-79122.html#dropdown-1-1-1-0-3" class="hub-toggle"><span class="hub-toggle-content">2.2.1.4. Dual Configuration Intel® FPGA IP Core</span></a>



```
</div>
</div>
```

```
<div id="dropdown-1-1-1-0-1" class="hub-
content off-screen">
  <div class="hub-content-header">
    <div class="container">
      <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade-circuitry.html">2.2.1.2. Remote System Upgrade Circuitry</a>
    </div>
  </div>
  <div class="hub-content-wrap">
```

```
    <a
href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade-circuitry-signals.html#dropdown-1-1-1-0-1--0" class="hub-
toggle"><span class="hub-toggle-content">2.2.1.2.1. Remote System Upgrade
Circuitry Signals</span></a>
```

```
    <a
href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade-circuitry-input.html#dropdown-1-1-1-0-1--1" class="hub-toggle"><span
class="hub-toggle-content">2.2.1.2.2. Remote System Upgrade Circuitry Input
Control</span></a>
```

```
    <a
href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade-input-register.html#dropdown-1-1-1-0-1--2" class="hub-toggle"><span
class="hub-toggle-content">2.2.1.2.3. Remote System Upgrade Input
Register</span></a>
```

```
    <a
href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade-status-registers.html#dropdown-1-1-1-0-1--3" class="hub-
toggle"><span class="hub-toggle-content">2.2.1.2.4. Remote System Upgrade
Status Registers</span></a>
```

```
    <a
href="/content/www/us/en/docs/programmable/683865/current/master-state-
machine.html#dropdown-1-1-1-0-1--4" class="hub-toggle"><span class="hub-
toggle-content">2.2.1.2.5. Master State Machine</span></a>
```

</div>  
</div>

<div id="dropdown-1-1-1-1" class="hub-content off-screen">

<div class="hub-content-header">  
<div class="container">  
<a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/configuration-design-security.html">2.2.2. Configuration Design Security</a>  
</div>  
</div>  
<div class="hub-content-wrap">

<a  
href="/content/www/us/en/docs/programmable/683865/current/aes-encryption-protection.html#dropdown-1-1-1-1-0" class="hub-toggle"><span class="hub-toggle-content">2.2.2.1. AES Encryption Protection</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id.html#dropdown-1-1-1-1-1" class="hub-toggle"><span class="hub-toggle-content">2.2.2.2. Unique Chip ID</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-mode.html#dropdown-1-1-1-1-2" class="hub-toggle"><span class="hub-toggle-content">2.2.2.3. JTAG Secure Mode</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/verify-protect.html#dropdown-1-1-1-1-3" class="hub-toggle"><span class="hub-toggle-content">2.2.2.4. Verify Protect</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/jtag-instruction-availability.html#dropdown-1-1-1-1-4" class="hub-toggle"><span class="hub-toggle-content">2.2.2.5. JTAG Instruction Availability</span></a>

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory-permissions.html#dropdown-1-1-1-1-5" class="hub-
toggle"><span class="hub-toggle-content">2.2.2.6. Configuration Flash Memory
Permissions</span></a>

```

```

            </div>
        </div>

```

```

        <div id="dropdown-1-1-1-1-0" class="hub-
content off-screen">
            <div class="hub-content-header">
                <div class="container">
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/aes-encryption-
protection.html">2.2.2.1. AES Encryption Protection</a>
                </div>
            </div>
            <div class="hub-content-wrap">

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/encryption-and-
decryption.html#dropdown-1-1-1-1-0--0" class="hub-toggle"><span class="hub-
toggle-content">2.2.2.1.1. Encryption and Decryption</span></a>

```

```

            </div>
        </div>

```

```

        <div id="dropdown-1-1-1-1-1" class="hub-
content off-screen">
            <div class="hub-content-header">
                <div class="container">
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/unique-chip-
id.html">2.2.2.2. Unique Chip ID</a>
                </div>
            </div>
            <div class="hub-content-wrap">

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-
core-80250.html#dropdown-1-1-1-1-1--0" class="hub-toggle"><span
class="hub-toggle-content">2.2.2.2.1. Unique Chip ID Intel® FPGA IP
Core</span></a>

```

```
</div>
</div>
```

```
<div id="dropdown-1-1-1-1-2" class="hub-
content off-screen">
```

```
<div class="hub-content-header">
  <div class="container">
    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-
mode.html">2.2.2.3. JTAG Secure Mode</a>
  </div>
</div>
<div class="hub-content-wrap">
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-
mode-instructions.html#dropdown-1-1-1-1-2--0" class="hub-toggle"><span
class="hub-toggle-content">2.2.2.3.1. JTAG Secure Mode
Instructions</span></a>
```

```
</div>
</div>
```

```
<div id="dropdown-1-1-1-1-5" class="hub-
content off-screen">
```

```
<div class="hub-content-header">
  <div class="container">
    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory-permissions.html">2.2.2.6. Configuration Flash Memory
Permissions</a>
  </div>
</div>
<div class="hub-content-wrap">
```

```
<a
href="/content/www/us/en/docs/programmable/683865/current/flash-region-
access-control-and-immutability.html#dropdown-1-1-1-1-5--0" class="hub-
toggle"><span class="hub-toggle-content">2.2.2.6.1. Flash Region Access
Control and Immutability</span></a>
```

```
</div>
```

</div>

<div id="dropdown-1-1-1-2" class="hub-content off-screen">

<div class="hub-content-header">

<div class="container">

<a class="back-hub-link"

href="/content/www/us/en/docs/programmable/683865/current/seu-mitigation-and-configuration-error.html">2.2.3. SEU Mitigation and Configuration Error Detection</a>

</div>

</div>

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<a

href="/content/www/us/en/docs/programmable/683865/current/configuration-error-detection.html#dropdown-1-1-1-2-0" class="hub-toggle"><span class="hub-toggle-content">2.2.3.1. Configuration Error Detection</span></a>

<a

href="/content/www/us/en/docs/programmable/683865/current/user-mode-error-detection.html#dropdown-1-1-1-2-1" class="hub-toggle"><span class="hub-toggle-content">2.2.3.2. User Mode Error Detection</span></a>

<a

href="/content/www/us/en/docs/programmable/683865/current/error-detection-timing.html#dropdown-1-1-1-2-2" class="hub-toggle"><span class="hub-toggle-content">2.2.3.3. Error Detection Timing</span></a>

<a

href="/content/www/us/en/docs/programmable/683865/current/recovering-from-crc-errors.html#dropdown-1-1-1-2-3" class="hub-toggle"><span class="hub-toggle-content">2.2.3.4. Recovering from CRC Errors</span></a>

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detection.html">2.2.3.2. User Mode Error Detection</a>

```

```

                </div>
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block.html#dropdown-1-1-1-2-1--0" class="hub-toggle"><span class="hub-
toggle-content">2.2.3.2.1. Error Detection Block</span></a>

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jtag-instruction.html#dropdown-1-1-1-2-1--1" class="hub-toggle"><span
class="hub-toggle-content">2.2.3.2.2. CHANGE_EDREG JTAG
Instruction</span></a>

```

```

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timing.html">2.2.3.3. Error Detection Timing</a>
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frequency.html#dropdown-1-1-1-2-2--0" class="hub-toggle"><span class="hub-
toggle-content">2.2.3.3.1. Error Detection Frequency</span></a>

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redundancy-check-calculation-timing.html#dropdown-1-1-1-2-2--1" class="hub-
toggle"><span class="hub-toggle-content">2.2.3.3.2. Cyclic Redundancy Check
Calculation Timing</span></a>

```

```

            </div>
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details.html">2.3. Configuration Details</a>
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href="/content/www/us/en/docs/programmable/683865/current/configuration-
sequence.html#dropdown-1-1-2-0" class="hub-toggle"><span class="hub-
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```

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href="/content/www/us/en/docs/programmable/683865/current/configuration-
pins.html#dropdown-1-1-2-1" class="hub-toggle"><span class="hub-toggle-
content">2.3.2. Intel® MAX® 10 Configuration Pins</span></a>
```

```
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</div>
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    </div>
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up.html#dropdown-1-1-2-0-0" class="hub-toggle"><span class="hub-toggle-
content">2.3.1.1. Power-up</span></a>

```

```

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ml#dropdown-1-1-2-0-1" class="hub-toggle"><span class="hub-toggle-
content">2.3.1.2. Configuration</span></a>

```

```

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href="/content/www/us/en/docs/programmable/683865/current/configuration-
error-handling.html#dropdown-1-1-2-0-2" class="hub-toggle"><span
class="hub-toggle-content">2.3.1.3. Configuration Error Handling</span></a>

```

```

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#dropdown-1-1-2-0-3" class="hub-toggle"><span class="hub-toggle-
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mode.html#dropdown-1-1-2-0-4" class="hub-toggle"><span class="hub-toggle-
content">2.3.1.5. User Mode</span></a>

```

```

            </div>
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up.html">2.3.1.1. Power-up</a>
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```

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class="hub-toggle-content">2.3.1.1.1. POR Monitored Voltage Rails for Single-
supply and Dual-supply Intel® MAX® 10 Devices</span></a>

```



[2.3.1.1.2. Monitored Power Supplies Ramp Time Requirement for Intel® MAX® 10 Devices](/content/www/us/en/docs/programmable/683865/current/monitored-power-supplies-ramp-time-requirement.html#dropdown-1-1-2-0-0-1)

[3. Intel® MAX® 10 FPGA Configuration Design Guidelines](/content/www/us/en/docs/programmable/683865/current/fpga-configuration-design-guidelines.html)

[3.1. Dual-Purpose Configuration Pins](/content/www/us/en/docs/programmable/683865/current/dual-purpose-configuration-pins.html#dropdown-1-2-0)

[3.2. Configuring Intel® MAX® 10 Devices using JTAG Configuration](/content/www/us/en/docs/programmable/683865/current/configuring-devices-using-jtag-configuration.html#dropdown-1-2-1)

[<a href="/content/www/us/en/docs/programmable/683865/current/configuring-devices-using-internal-.html#dropdown-1-2-2" class="hub-toggle "><span class="hub-toggle-content">3.3. Configuring Intel® MAX® 10 Devices using Internal Configuration</span></a>](/content/www/us/en/docs/programmable/683865/current/configuring-devices-using-internal-.html#dropdown-1-2-2)

[<a href="/content/www/us/en/docs/programmable/683865/current/implementing-isp-clamp-in-software.html#dropdown-1-2-3" class="hub-toggle "><span class="hub-toggle-content">3.4. Implementing ISP Clamp in Intel® Quartus® Prime Software</span></a>](/content/www/us/en/docs/programmable/683865/current/implementing-isp-clamp-in-software.html#dropdown-1-2-3)

[<a href="/content/www/us/en/docs/programmable/683865/current/accessing-remote-system-upgrade-through.html#dropdown-1-2-4" class="hub-toggle "><span class="hub-toggle-content">3.5. Accessing Remote System Upgrade through User Logic</span></a>](/content/www/us/en/docs/programmable/683865/current/accessing-remote-system-upgrade-through.html#dropdown-1-2-4)

[<a href="/content/www/us/en/docs/programmable/683865/current/error-detection.html#dropdown-1-2-5" class="hub-toggle "><span class="hub-toggle-content">3.6. Error Detection</span></a>](/content/www/us/en/docs/programmable/683865/current/error-detection.html#dropdown-1-2-5)

[<a href="/content/www/us/en/docs/programmable/683865/current/enabling-data-compression.html#dropdown-1-2-6" class="hub-toggle "><span class="hub-toggle-content">3.7. Enabling Data Compression</span></a>](/content/www/us/en/docs/programmable/683865/current/enabling-data-compression.html#dropdown-1-2-6)

[<a href="/content/www/us/en/docs/programmable/683865/current/aes-encryption.html#dropdown-1-2-7" class="hub-toggle "><span class="hub-toggle-content">3.8. AES Encryption</span></a>](/content/www/us/en/docs/programmable/683865/current/aes-encryption.html#dropdown-1-2-7)

[<a href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-design-example.html#dropdown-1-2-8" class="hub-toggle "><span class="hub-toggle-content">3.9. Intel® MAX® 10 JTAG Secure Design Example</span></a>](/content/www/us/en/docs/programmable/683865/current/jtag-secure-design-example.html#dropdown-1-2-8)

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 </div>  
</div>

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href="/content/www/us/en/docs/programmable/683865/current/guidelines-dual-
purpose-configuration-pin.html#dropdown-1-2-0-0" class="hub-toggle"><span
class="hub-toggle-content">3.1.1. Guidelines: Dual-Purpose Configuration
Pin</span></a>

```

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/enabling-dual-
purpose-pin.html#dropdown-1-2-0-1" class="hub-toggle"><span class="hub-
toggle-content">3.1.2. Enabling Dual-Purpose Pin</span></a>

```

```

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purpose-configuration-pin.html">3.1.1. Guidelines: Dual-Purpose Configuration
Pin</a>
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        </div>
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href="/content/www/us/en/docs/programmable/683865/current/jtag-pin-sharing-
behavior.html#dropdown-1-2-0-0-0" class="hub-toggle"><span class="hub-
toggle-content">3.1.1.1. JTAG Pin Sharing Behavior</span></a>

```

```

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devices-using-jtag-configuration.html">3.2. Configuring Intel® MAX® 10 Devices
using JTAG Configuration</a>
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href="/content/www/us/en/docs/programmable/683865/current/auto-generating-
configuration-files.html#dropdown-1-2-1-0" class="hub-toggle"><span
class="hub-toggle-content">3.2.1. Auto-Generating Configuration Files for Third-
Party Programming Tools</span></a>
```

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party-programming-files%20generating-third-party-programming-files
%20generating-third-party-programming-files.html#dropdown-1-2-1-1"
class="hub-toggle"><span class="hub-toggle-content">Generating Third-Party
Programming Files using Intel® Quartus® Prime Programmer</span></a>
```

```
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href="/content/www/us/en/docs/programmable/683865/current/jtag-
configuration-setup.html#dropdown-1-2-1-2" class="hub-toggle"><span
class="hub-toggle-content">3.2.3. JTAG Configuration Setup</span></a>
```

```
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href="/content/www/us/en/docs/programmable/683865/current/icb-settings-in-
jtag-configuration.html#dropdown-1-2-1-3" class="hub-toggle"><span
class="hub-toggle-content">3.2.4. ICB Settings in JTAG
Configuration</span></a>
```

```
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href="/content/www/us/en/docs/programmable/683865/current/configuring-
devices-using-internal-.html">3.3. Configuring Intel® MAX® 10 Devices using
Internal Configuration</a>
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  </div>
</div class="hub-content-wrap">
```

```

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href="/content/www/us/en/docs/programmable/683865/current/selecting-
internal-configuration-modes.html#dropdown-1-2-2-0" class="hub-
toggle"><span class="hub-toggle-content">3.3.1. Selecting Internal
Configuration Modes</span></a>
```

```

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settings.html#dropdown-1-2-2-1" class="hub-toggle"><span class="hub-toggle-
content">3.3.2. .pof and ICB Settings</span></a>
```

```

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href="/content/www/us/en/docs/programmable/683865/current/programming-
pof-into-internal-flash.html#dropdown-1-2-2-2" class="hub-toggle"><span
class="hub-toggle-content">3.3.3. Programming .pof into Internal
Flash</span></a>
```

```

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  </div>
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settings.html">3.3.2. .pof and ICB Settings</a>
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href="/content/www/us/en/docs/programmable/683865/current/auto-generated-pof.html#dropdown-1-2-2-1-0" class="hub-toggle"><span class="hub-toggle-content">3.3.2.1. Auto-Generated .pof</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/generating-pof-using-convert-programming.html#dropdown-1-2-2-1-1" class="hub-toggle"><span class="hub-toggle-content">3.3.2.2. Generating .pof using Convert Programming Files</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/generating-third-party-programming-files%20generating-third-party-programming-files%20generating-third-party-programming-files-01.html#dropdown-1-2-2-1-2" class="hub-toggle"><span class="hub-toggle-content">Generating Third-Party Programming Files using Intel® Quartus® Prime Programmer</span></a>

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href="/content/www/us/en/docs/programmable/683865/current/implementing-isp-clamp-in-software.html">3.4. Implementing ISP Clamp in Intel® Quartus® Prime Software</a>  
    </div>  
  </div>  
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href="/content/www/us/en/docs/programmable/683865/current/creating-ips-

file.html#dropdown-1-2-3-0" class="hub-toggle"><span class="hub-toggle-content">3.4.1. Creating IPS File</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/executing-ips-file.html#dropdown-1-2-3-1" class="hub-toggle"><span class="hub-toggle-content">3.4.2. Executing IPS File</span></a>

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href="/content/www/us/en/docs/programmable/683865/current/verifying-error-detection-functionality.html#dropdown-1-2-5-0" class="hub-toggle"><span class="hub-toggle-content">3.6.1. Verifying Error Detection Functionality</span></a>

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href="/content/www/us/en/docs/programmable/683865/current/enabling-error-detection.html#dropdown-1-2-5-1" class="hub-toggle"><span class="hub-toggle-content">3.6.2. Enabling Error Detection</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/accessing-error-detection-block-through.html#dropdown-1-2-5-2" class="hub-toggle"><span class="hub-toggle-content">3.6.3. Accessing Error Detection Block Through User Logic</span></a>

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class="hub-toggle-content">3.7.1. Enabling Compression Before Design  
Compilation</span></a>

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href="/content/www/us/en/docs/programmable/683865/current/enabling-compression-after-design-c.html#dropdown-1-2-6-1" class="hub-toggle"><span  
class="hub-toggle-content">3.7.2. Enabling Compression After Design  
Compilation</span></a>

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```

```
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```
        <a
href="/content/www/us/en/docs/programmable/683865/current/generating-ekp-
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Encrypt Configuration File</span></a>
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```
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href="/content/www/us/en/docs/programmable/683865/current/generating-jam-
jbc-svf-file-from-ekp-file.html#dropdown-1-2-7-1" class="hub-toggle"><span
class="hub-toggle-content">3.8.2. Generating .jam/.jbc/.svf file from .ekp
file</span></a>
```

```
        <a
href="/content/www/us/en/docs/programmable/683865/current/programming-
ekp-file-and-encrypted-pof-file.html#dropdown-1-2-7-2" class="hub-
toggle"><span class="hub-toggle-content">3.8.3. Programming .ekp File and
Encrypted POF File</span></a>
```

```
        <a
href="/content/www/us/en/docs/programmable/683865/current/encryption-in-
internal-configuration.html#dropdown-1-2-7-3" class="hub-toggle"><span
class="hub-toggle-content">3.8.4. Encryption in Internal
Configuration</span></a>
```

```
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href="/content/www/us/en/docs/programmable/683865/current/programming-
ekp-file-and-encrypted-pof-file.html">3.8.3. Programming .ekp File and
Encrypted POF File</a>
```

```
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</div>
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```
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href="/content/www/us/en/docs/programmable/683865/current/programming-
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toggle"><span class="hub-toggle-content">3.8.3.1. Programming .ekp File and
Encrypted .pof Separately</span></a>
```

```
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href="/content/www/us/en/docs/programmable/683865/current/integrate-the-
ekp-into-pof-programming.html#dropdown-1-2-7-2-1" class="hub-
toggle"><span class="hub-toggle-content">3.8.3.2. Integrate the .ekp into .pof
Programming</span></a>
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href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-
design-example.html">3.9. Intel® MAX® 10 JTAG Secure Design Example</a>
        </div>
      </div>
    </div>
    <div class="hub-content-wrap">
```

```
      <a
href="/content/www/us/en/docs/programmable/683865/current/internal-and-
external-jtag-interfaces.html#dropdown-1-2-8-0" class="hub-toggle"><span
class="hub-toggle-content">3.9.1. Internal and External JTAG
Interfaces</span></a>
```

[<a href="/content/www/us/en/docs/programmable/683865/current/jtag-wysiwyg-atom-for-jtag-control-block.html#dropdown-1-2-8-1" class="hub-toggle"><span class="hub-toggle-content">3.9.2. JTAG WYSIWYG Atom for JTAG Control Block Access Using Internal JTAG Interface</span></a>](/content/www/us/en/docs/programmable/683865/current/jtag-wysiwyg-atom-for-jtag-control-block.html#dropdown-1-2-8-1)

[<a href="/content/www/us/en/docs/programmable/683865/current/executing-lock-and-unlock-jtag-instructions.html#dropdown-1-2-8-2" class="hub-toggle"><span class="hub-toggle-content">3.9.3. Executing LOCK and UNLOCK JTAG Instructions</span></a>](/content/www/us/en/docs/programmable/683865/current/executing-lock-and-unlock-jtag-instructions.html#dropdown-1-2-8-2)

[<a href="/content/www/us/en/docs/programmable/683865/current/verifying-the-jtag-secure-mode.html#dropdown-1-2-8-3" class="hub-toggle"><span class="hub-toggle-content">3.9.4. Verifying the JTAG Secure Mode</span></a>](/content/www/us/en/docs/programmable/683865/current/verifying-the-jtag-secure-mode.html#dropdown-1-2-8-3)

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 <a class="back-hub-link" href="/content/www/us/en/docs/programmable/683865/current/fpga-configuration-ip-core-implementation.html">4. Intel® MAX® 10 FPGA Configuration IP Core Implementation Guides</a>  
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core-27700.html#dropdown-1-3-0" class="hub-toggle "><span class="hub-toggle-content">4.1. Unique Chip ID Intel® FPGA IP Core</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-26199.html#dropdown-1-3-1" class="hub-toggle "><span class="hub-toggle-content">4.2. Dual Configuration Intel® FPGA IP Core</span></a>

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[4.2. Dual Configuration Intel® FPGA IP Core](/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-26199.html)

[4.2.1. Instantiating the Dual Configuration Intel® FPGA IP Core](/content/www/us/en/docs/programmable/683865/current/instantiating-the-dual-configuration-core.html#dropdown-1-3-1-0)

5. Dual Configuration Intel® FPGA IP Core References

[5.1. Dual Configuration Intel® FPGA IP Core Avalon® Memory-Mapped Address Map](/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-memory-mapped.html#dropdown-1-4-0)

[5.2. Dual Configuration Intel® FPGA IP Core Parameters](/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-parameters.html#dropdown-1-4-1)

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Remote System Upgrade through User Logic</span>
  </button>
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href="/content/www/us/en/docs/programmable/683865/current/flash-region-
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```
  <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
details.html" class="">2.3. Configuration Details</a>
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-

-

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[2.3.1.2. Configuration](/content/www/us/en/docs/programmable/683865/current/configuration.html)

[2.3.1.3. Configuration Error Handling](/content/www/us/en/docs/programmable/683865/current/configuration-error-handling.html)

[2.3.1.4. Initialization](/content/www/us/en/docs/programmable/683865/current/initialization.html)

[2.3.1.5. User Mode](/content/www/us/en/docs/programmable/683865/current/user-mode.html)

[2.3.2. Intel® MAX® 10 Configuration Pins](/content/www/us/en/docs/programmable/683865/current/configuration-pins.html)

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href="/content/www/us/en/docs/programmable/683865/current/fpga-
configuration-design-guidelines.html" class="">3. Intel® MAX® 10 FPGA
Configuration Design Guidelines</a>
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href="/content/www/us/en/docs/programmable/683865/current/dual-purpose-
configuration-pins.html" class="">3.1. Dual-Purpose Configuration Pins</a>
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href="/content/www/us/en/docs/programmable/683865/current/guidelines-dual-
purpose-configuration-pin.html" class="">3.1.1. Guidelines: Dual-Purpose
Configuration Pin</a>
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href="/content/www/us/en/docs/programmable/683865/current/jtag-pin-sharing-
behavior.html"> 3.1.1.1. JTAG Pin Sharing Behavior</a></li>

```

```

        </ul>

```

```

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```

```

        <ul class="links">
            <li class="collapsed"><a
href="/content/www/us/en/docs/programmable/683865/current/enabling-dual-
purpose-pin.html"> 3.1.2. Enabling Dual-Purpose Pin</a></li>

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```

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        <a
href="/content/www/us/en/docs/programmable/683865/current/configuring-
devices-using-jtag-configuration.html" class="">3.2. Configuring Intel® MAX®
10 Devices using JTAG Configuration</a>
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href="/content/www/us/en/docs/programmable/683865/current/auto-generating-
configuration-files.html"> 3.2.1. Auto-Generating Configuration Files for Third-
Party Programming Tools</a></li>

```

```

        </ul>

```

```

    <ul class="links">

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[Generating Third-Party Programming Files using Intel® Quartus® Prime Programmer](/content/www/us/en/docs/programmable/683865/current/generating-third-party-programming-files%20generating-third-party-programming-files%20generating-third-party-programming-files.html)

[3.2.3. JTAG Configuration Setup](/content/www/us/en/docs/programmable/683865/current/jtag-configuration-setup.html)

[3.2.4. ICB Settings in JTAG Configuration](/content/www/us/en/docs/programmable/683865/current/icb-settings-in-jtag-configuration.html)

[3.3. Configuring Intel® MAX® 10 Devices using Internal Configuration](/content/www/us/en/docs/programmable/683865/current/configuring-devices-using-internal-.html)



internal-configuration-modes.html"> 3.3.1. Selecting Internal Configuration Modes</a></li>

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class="btn-filter-dropdown-indicator"></span></button>

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href="/content/www/us/en/docs/programmable/683865/current/pof-and-icb-  
settings.html" class="">3.3.2. .pof and ICB Settings</a>

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href="/content/www/us/en/docs/programmable/683865/current/auto-generated-  
pof.html"> 3.3.2.1. Auto-Generated .pof</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/generating-pof-  
using-convert-programming.html"> 3.3.2.2. Generating .pof using Convert  
Programming Files</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/generating-third-  
party-programming-files%20generating-third-party-programming-files  
%20generating-third-party-programming-files-01.html"> Generating Third-Party  
Programming Files using Intel® Quartus® Prime Programmer</a></li>

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 <li class="collapsed"><a  
href="/content/www/us/en/docs/programmable/683865/current/programming-  
pof-into-internal-flash.html"> 3.3.3. Programming .pof into Internal  
Flash</a></li>

</ul>

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 <a  
href="/content/www/us/en/docs/programmable/683865/current/implementing-  
isp-clamp-in-software.html" class="">3.4. Implementing ISP Clamp in Intel®  
Quartus® Prime Software</a>  
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href="/content/www/us/en/docs/programmable/683865/current/creating-ips-  
file.html"> 3.4.1. Creating IPS File</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/executing-ips-  
file.html"> 3.4.2. Executing IPS File</a></li>

</ul>

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  <li class="collapsed active-section"><a
href="/content/www/us/en/docs/programmable/683865/current/accessing-
remote-system-upgrade-through.html">3.5. Accessing Remote System Upgrade
through User Logic</a></li>

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  <a
href="/content/www/us/en/docs/programmable/683865/current/error-
detection.html" class="">3.6. Error Detection</a>
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  <li class="collapsed"><a
href="/content/www/us/en/docs/programmable/683865/current/verifying-error-
detection-functionality.html"> 3.6.1. Verifying Error Detection
Functionality</a></li>

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```

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<ul class="links">
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href="/content/www/us/en/docs/programmable/683865/current/enabling-error-
detection.html"> 3.6.2. Enabling Error Detection</a></li>

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<ul class="links">
```

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        <li class="collapsed"><a
href="/content/www/us/en/docs/programmable/683865/current/accessing-error-
detection-block-through.html"> 3.6.3. Accessing Error Detection Block Through
User Logic</a></li>
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</ul>
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</div>
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2"><span class="btn-filter-dropdown-indicator"></span></button>
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href="/content/www/us/en/docs/programmable/683865/current/enabling-data-
compression.html" class="">3.7. Enabling Data Compression</a>
    </div>
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href="/content/www/us/en/docs/programmable/683865/current/enabling-
compression-before-design-.html"> 3.7.1. Enabling Compression Before Design
Compilation</a></li>
```

```
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```

```
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href="/content/www/us/en/docs/programmable/683865/current/enabling-
compression-after-design-c.html"> 3.7.2. Enabling Compression After Design
Compilation</a></li>
```

```
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```

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            <a
href="/content/www/us/en/docs/programmable/683865/current/aes-
encryption.html" class="">3.8. AES Encryption</a>
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                <li class="collapsed"><a
href="/content/www/us/en/docs/programmable/683865/current/generating-ekp-
file-and-encrypt-configuration.html"> 3.8.1. Generating .ekp File and Encrypt
Configuration File</a></li>
            </ul>

```

```

            <ul class="links">
                <li class="collapsed"><a
href="/content/www/us/en/docs/programmable/683865/current/generating-jam-
jbc-svf-file-from-ekp-file.html"> 3.8.2. Generating .jam/.jbc/.svf file from .ekp
file</a></li>
            </ul>

```

```

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class="btn-filter-dropdown-indicator"></span></button>
            <a
href="/content/www/us/en/docs/programmable/683865/current/programming-
ekp-file-and-encrypted-pof-file.html" class="">3.8.3. Programming .ekp File and
Encrypted POF File</a>
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```

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```

`<li class="collapsed"><a href="/content/www/us/en/docs/programmable/683865/current/programming-ekp-file-and-encrypted-pof.html"> 3.8.3.1. Programming .ekp File and Encrypted .pof Separately</a></li>`

`</ul>`

`<ul class="links">  
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`</ul>`

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`<a href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-design-example.html" class="">3.9. Intel® MAX® 10 JTAG Secure Design Example</a>`

`</div>`

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href="/content/www/us/en/docs/programmable/683865/current/internal-and-
external-jtag-interfaces.html"> 3.9.1. Internal and External JTAG
Interfaces</a></li>
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href="/content/www/us/en/docs/programmable/683865/current/jtag-wysiwyg-
atom-for-jtag-control-block.html"> 3.9.2. JTAG WYSIWYG Atom for JTAG Control
Block Access Using Internal JTAG Interface</a></li>
```

```
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```

```
        <ul class="links">
            <li class="collapsed"><a
href="/content/www/us/en/docs/programmable/683865/current/executing-lock-
and-unlock-jtag-instructions.html"> 3.9.3. Executing LOCK and UNLOCK JTAG
Instructions</a></li>
```

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```
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href="/content/www/us/en/docs/programmable/683865/current/verifying-the-
jtag-secure-mode.html"> 3.9.4. Verifying the JTAG Secure Mode</a></li>
```

```
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href="/content/www/us/en/docs/programmable/683865/current/fpga-configuration-ip-core-implementation.html" class="">4. Intel® MAX® 10 FPGA Configuration IP Core Implementation Guides</a>  
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href="/content/www/us/en/docs/programmable/683865/current/instantiating-the-unique-chip-id-core.html"> 4.1.1. Instantiating the Unique Chip ID Intel® FPGA IP Core</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/resetting-the-unique-chip-id-core.html"> 4.1.2. Resetting the Unique Chip ID Intel® FPGA IP Core</a></li>

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2"><span class="btn-filter-dropdown-indicator"></span></button>
            <a
href="/content/www/us/en/docs/programmable/683865/current/dual-
configuration-core-26199.html" class="">4.2. Dual Configuration Intel® FPGA IP
Core</a>

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```

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href="/content/www/us/en/docs/programmable/683865/current/instantiating-the-
dual-configuration-core.html"> 4.2.1. Instantiating the Dual Configuration Intel®
FPGA IP Core</a></li>

```

```

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1-4"><span class="btn-filter-dropdown-indicator"></span></button>
        <a
href="/content/www/us/en/docs/programmable/683865/current/dual-
configuration-core-references.html" class="">5. Dual Configuration Intel® FPGA
IP Core References</a>
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href="/content/www/us/en/docs/programmable/683865/current/dual-

```

configuration-core-memory-mapped.html">5.1. Dual Configuration Intel® FPGA IP Core Avalon® Memory-Mapped Address Map</a></li>

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<a href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-core-references.html" class="">6. Unique Chip ID Intel® FPGA IP Core References</a>

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1-6"></button>
  <a
href="/content/www/us/en/docs/programmable/683865/current/document-
revision-history-for-the-fpga.html" class="">7. Document Revision History for
the Intel® MAX® 10 FPGA Configuration User Guide</a>
</div>
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<!--Dita code end-->
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</div>
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```
<!-- Content Section -->
```

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  udeSearch.config = {
    searchHub: "
  };
</script>
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component-id="1">
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```
    <p><span class="disclaimer">Visible to Intel only — </span>
```

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      <span class="info">sss1396067287706</span></p>
```

```
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class="info">Ixiasoft</span>
    </p>
```

```
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<div class="col-lg-2 col-xs-12">
  <p class="cta-item">
    <a class="btn btn-tertiary"
href="/content/www/us/en/secure/design/internal/content-details.html?
DocID="><span>View Details</span></a>
  </p>
</div>
</div>
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```
</div>
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through User Logic</h2>
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    <div class="body conbody" id="d25658e132">
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a WYSIWYG atom are defined in the <span class="keyword"
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```

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  <span class="notetitle">Note:</span> WYSIWYG is a technique that performs
  optimization on the Verilog Quartus Mapping netlist within the <span
  class="keyword" id="sss1396067287706__d25658e150"> Intel® Quartus®
  Prime</span> software.
</div>
<div class="code-toolbar component" data-component="wa_skip_track" data-
component-id="1"><pre class="codeblock language-c line-numbers"><div
class="toolbar" style="float: right;"><div class="toolbar-item"><a>Copy
Code</a></div></div><code class=" language-c"
id="sss1396067287706__d25658e160">fiftyfivenm_rublock <span class="token
operator">&lt;</span>rublock_name<span class="token
operator">&gt;</span>
<span class="token punctuation">(</span>
  <span class="token punctuation">.</span><span class="token
function">clk</span><span class="token punctuation">(</span><span
class="token operator">&lt;</span>clock source<span class="token
operator">&gt;</span><span class="token punctuation">)</span><span
class="token punctuation">,</span>
  <span class="token punctuation">.</span><span class="token
function">shift</span><span class="token punctuation">(</span><span
class="token operator">&lt;</span>shift</span> source<span class="token
operator">&gt;</span><span class="token punctuation">)</span><span
class="token punctuation">,</span>
  <span class="token punctuation">.</span><span class="token
function">captnupdt</span><span class="token punctuation">(</span><span
class="token operator">&lt;</span>captnupdt source<span class="token
operator">&gt;</span><span class="token punctuation">)</span><span
class="token punctuation">,</span>
  <span class="token punctuation">.</span><span class="token
function">regin</span><span class="token punctuation">(</span><span
class="token operator">&lt;</span>regin input source from the core<span
class="token operator">&gt;</span><span class="token
punctuation">)</span><span class="token punctuation">,</span>
  <span class="token punctuation">.</span><span class="token
function">rsttimer</span><span class="token punctuation">(</span><span
class="token operator">&lt;</span>input signal to reset the watchdog
timer<span class="token operator">&gt;</span><span class="token
punctuation">)</span><span class="token punctuation">,</span>
  <span class="token punctuation">.</span><span class="token
function">rconfig</span><span class="token punctuation">(</span><span
class="token operator">&lt;</span>input signal to initiate configuration<span
class="token operator">&gt;</span><span class="token
punctuation">)</span><span class="token punctuation">,</span>
  <span class="token punctuation">.</span><span class="token
function">regout</span><span class="token punctuation">(</span><span
class="token operator">&lt;</span>data output destination to core<span
class="token operator">&gt;</span><span class="token
punctuation">)</span>
<span class="token punctuation">)</span><span class="token
punctuation">,</span>
  defparam <span class="token operator">&lt;</span>rublock_name<span
class="token operator">&gt;</span><span class="token

```

```

punctuation">.</span>sim_init_config <span class="token
operator">=</span> <span class="token operator">&lt;</span>initial
configuration <span class="token keyword keyword-for">for</span> simulation
only<span class="token operator">&gt;</span><span class="token
punctuation">;</span>
defparam <span class="token operator">&lt;</span>rublock_name<span
class="token operator">&gt;</span><span class="token
punctuation">.</span>sim_init_watchdog_value <span class="token
operator">=</span> <span class="token operator">&lt;</span>initial
watchdog value <span class="token keyword keyword-for">for</span>
simulation only<span class="token operator">&gt;</span><span class="token
punctuation">;</span>
defparam <span class="token operator">&lt;</span>rublock_name<span
class="token operator">&gt;</span><span class="token
punctuation">.</span>sim_init_config <span class="token
operator">=</span> <span class="token operator">&lt;</span>initial status
<span class="token keyword keyword-register">register</span> value <span
class="token keyword keyword-for">for</span> simulation only<span
class="token operator">&gt;</span><span class="token
punctuation">;</span><span aria-hidden="true" class="line-numbers-
rows"><span style="height: 44px;"></span><span style="height:
22px;"></span><span style="height: 22px;"></span><span style="height:
44px;"></span><span style="height: 44px;"></span><span style="height:
44px;"></span><span style="height: 66px;"></span><span style="height:
44px;"></span><span style="height: 44px;"></span><span style="height:
22px;"></span><span style="height: 88px;"></span><span style="height:
88px;"></span><span style="height: 88px;"></span></span><span
class="line-numbers-sizer" style="display:
none;"></span></code></pre></div>
<div class="tablenoborder">
  <table cellpadding="4" cellspacing="0" summary=""
id="sss1396067287706_table_t1s_vcn_kv" class="table" frame="border"
border="1" rules="all">
    <caption>
      <span class="tablecap"><span class="tablecap"><span
class="enumeration table-enumeration">Table 30. &nbsp;</span>Port
Definitions</span></span>
    </caption>
    <thead class="thead" align="left">
      <tr class="row">
        <th class="entry" valign="top" width="36.363636363637%"
id="d25658e180">Port</th>
        <th class="entry" align="center" valign="top"
width="9.0909090909092%" id="d25658e183">Input/Output</th>
        <th class="entry" valign="top" width="54.545454545454%"
id="d25658e186">Definition</th>
      </tr>
    </thead>
    <tbody class="tbody">
      <tr class="row">
        <td class="entry" valign="top" width="36.363636363637%"
headers="d25658e180 "> <samp class="ph codeph"
id="sss1396067287706_d25658e197">&lt;rublock name&gt;</samp> </td>

```

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        <td class="entry" align="center" valign="top"
width="9.090909090909092%" headers="d25658e183 ">-</td>
        <td class="entry" valign="top" width="54.54545454545454%"
headers="d25658e186 ">Unique identifier for the RSU Block. This is any
identifier name which is legal for the given description language (e.g. Verilog,
VHDL, AHDL, etc.). This field is required. </td>
    </tr>
    <tr class="row">
        <td class="entry" valign="top" width="36.36363636363637%"
headers="d25658e180 "> <samp class="ph codeph"
id="sss1396067287706__d25658e212">.clk(&lt;clock source&gt;)</samp>
</td>
        <td class="entry" align="center" valign="top"
width="9.090909090909092%" headers="d25658e183 ">Input</td>
        <td class="entry" valign="top" width="54.54545454545454%"
headers="d25658e186 ">This signal designates the clock input of this cell. All
operation of this cell are with respect to the rising edge of this clock. Whether it
is the loading of the data into the cell or data out of the cell, it always occurs on
the rising edge. This field is required. </td>
    </tr>
    <tr class="row">
        <td class="entry" valign="top" width="36.36363636363637%"
headers="d25658e180 "> <samp class="ph codeph"
id="sss1396067287706__d25658e227">.shiftInId(&lt;shiftInId
source&gt;)</samp> </td>
        <td class="entry" align="center" valign="top"
width="9.090909090909092%" headers="d25658e183 ">Input</td>
        <td class="entry" valign="top" width="54.54545454545454%"
headers="d25658e186 ">This signal is an input into the remote system upgrade
block. If <samp class="ph codeph"
id="sss1396067287706__d25658e236">shiftInId</samp> = 1, then data gets
shifted from the internal shift registers to the regout at each rising edge of clk
and it gets shifted into the internal shift registers from regin. This field is
required. </td>
    </tr>
    <tr class="row">
        <td class="entry" valign="top" width="36.36363636363637%"
headers="d25658e180 "> <samp class="ph codeph"
id="sss1396067287706__d25658e245">.captnupdt(&lt;captnupdt
source&gt;)</samp> </td>
        <td class="entry" align="center" valign="top"
width="9.090909090909092%" headers="d25658e183 ">Input</td>
        <td class="entry" valign="top" width="54.54545454545454%"
headers="d25658e186 ">This signal is an input into the remote system upgrade
block. This controls the protocol of when to read the configuration mode or when
to write into the registers that control the configuration. This field is required.
</td>
    </tr>
    <tr class="row">
        <td class="entry" valign="top" width="36.36363636363637%"
headers="d25658e180 "> <samp class="ph codeph"
id="sss1396067287706__d25658e260">.regin(&lt;regin input source from the
core&gt;)</samp> </td>

```

```

<td class="entry" align="center" valign="top"
width="9.090909090909092%" headers="d25658e183 ">Input</td>
<td class="entry" valign="top" width="54.54545454545454%"
headers="d25658e186 ">This signal is an input into the remote system upgrade
block for all data being loaded into the core. The data is shifted into the internal
registers at the rising edge of clk. This field is required </td>
</tr>
<tr class="row">
<td class="entry" valign="top" width="36.36363636363637%"
headers="d25658e180 "> <samp class="ph codeph"
id="sss1396067287706__d25658e276">.rsttimer(&lt;input signal to reset the
watchdog timer&gt;)</samp> </td>
<td class="entry" align="center" valign="top"
width="9.090909090909092%" headers="d25658e183 ">Input</td>
<td class="entry" valign="top" width="54.54545454545454%"
headers="d25658e186 ">This signal is an input to reset the user watchdog
timer. A falling edge of this signal triggers a reset of the user watchdog timer. To
reset the timer, pulse the <samp class="ph codeph"
id="sss1396067287706__d25658e285">RU_nRSTIMER</samp> signal for a
minimum of <span class="ph nb" id="sss1396067287706__d25658e288">250
ns</span>. </td>
</tr>
<tr class="row">
<td class="entry" valign="top" width="36.36363636363637%"
headers="d25658e180 "> <samp class="ph codeph"
id="sss1396067287706__d25658e297">.rconfig(&lt;input signal to initiate
configuration&gt;)</samp> </td>
<td class="entry" align="center" valign="top"
width="9.090909090909092%" headers="d25658e183 ">Input</td>
<td class="entry" valign="top" width="54.54545454545454%"
headers="d25658e186 ">This signal is an input into the configuration section of
the remote update block. When this signal goes high, it initiates a
reconfiguration. This field is required. </td>
</tr>
<tr class="row">
<td class="entry" valign="top" width="36.36363636363637%"
headers="d25658e180 "> <samp class="ph codeph"
id="sss1396067287706__d25658e312">.regout(&lt;data output destination to
core&gt;)</samp> </td>
<td class="entry" align="center" valign="top"
width="9.090909090909092%" headers="d25658e183 ">Output</td>
<td class="entry" valign="top" width="54.54545454545454%"
headers="d25658e186 ">This is a 1 bit output which is the output of the internal
shift register updated every rising edge of <span class="ph filepath"
id="sss1396067287706__d25658e321">.clk</span>. The data coming out
depends on the control signals. This field is required. </td>
</tr>
</tbody>
</table>
</div>
</div>
<div class="related-links">
<div class="relinfo">

```



```

<strong>Related Information</strong>
<br>
<div>
  <a class="link"
href="/content/www/us/en/docs/programmable/683865/current/dual-
configuration-core-references.html">Dual Configuration Intel FPGA IP Core
References</a>
</div>
<div>
  <a class="link"
href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade.html" title="Intel MAX 10 devices support the remote system upgrade
feature. By default, the remote system upgrade feature is enabled when you
select the dual compressed image internal configuration mode.">Remote
System Upgrade</a>
</div>
<div>
  <a class="link"
href="/content/www/us/en/docs/programmable/683661/current/remote-system-
upgrade-for-max-10-fpga.html" title="Provides reference design for remote
system upgrade in Intel MAX 10 FPGA devices.">AN 741: Remote System
Upgrade for MAX 10 FPGA Devices over UART with the Nios II Processor</a>
</div>
<div>
  <a class="link" href="https://cloud.altera.com/devstore/platform/15.1.0/i2c-
remote-system-update-example/" title="This example demonstrates a remote
system upgrade using the I2C protocol.">I2C Remote System Update
Example</a>
</div>
</div>
</div>
</div>
<div class="modal fade modal-image" id="image-expand-modal"
tabindex="-1" role="dialog">
  <div class="modal-dialog">
    <div class="modal-content">
      <div class="modal-header">
        <button type="button" class="close icon" data-dismiss="modal"
aria-label="Close">
          <span></span></button>
      </div>
      <div class="modal-body"></div>
    </div>
  </div>
</div>
</div>
<div class="ude-documentation-details-mobile-content-navigation">
  <a class="btn btn-secondary" href="#">
    <span>Level Two Title</span>
  </a>
</div>
<div class="ude-documentation-details-desktop-content-navigation">
  <a class="btn btn-tertiary previous"
href="/content/www/us/en/docs/programmable/683865/current/executing-ips-

```

```

file.html"><span class="indicator"></span><span class="copy"> 3.4.2.
Executing IPS File</span></a>
    <a class="btn btn-tertiary next"
href="/content/www/us/en/docs/programmable/683865/current/error-
detection.html"><span class="indicator"></span><span class="copy">3.6.
Error Detection</span></a>
    </div>
</div>

```

```

    </div>
    <div class="feedbackTool container">

```

```

<script type="text/javascript">
    var intelFeedback = intelFeedback || {};
    intelFeedback.gtvLabels = {
        remainingText: 'Characters remaining',
        remainingTextOne: 'Character remaining',
        feedbackMessage: 'Feedback Sent'
    };
</script>

```

```

<section id="feedbackToolContainer" class="feedbackTool component" data-
component="coveo-feedback-modal" data-component-id="1" aria-
labelledby="fbc-title">
    <div class="fbc-header noselect" id="fbc-header" data-
wap_ref="close:feedback-modal" tabindex="0">
        <!-- icon -->
        <input type="hidden" id="errMissingResponse" value="Please answer at
least one question">
        <h2 class="fbc-title" id="fbc-title">
            <button aria-controls="fbc-body" aria-expanded="false" class="fbc-title-
btn" id="fbc-title-btn" type="button">
                
                <span class="fbc-title-label" id="fbc-title-label"> Give
Feedback</span>
            </button>
        </h2>

        <!-- close -->
        <button class="close fa-cancel-thin" aria-label="close feedback"
type="button" tabindex="0">
            <svg aria-hidden="true" class="close-icon" height="11" width="11"
viewBox="0 0 12 12">
                <line stroke="currentColor" stroke-width="1" x1="0" y1="0" x2="12"
y2="12"></line>

```

```

        <line stroke="currentColor" stroke-width="1" x1="0" y1="12"
x2="12" y2="0"></line>
    </svg>
</button>
</div>

<!-- body -->
<div class="fbc-body">

    <!-- question -->
    <div aria-labelledby="feedback-question" role="radiogroup" aria-
describedby="yesno-error" aria-required="true" id="fbc-question-div">
        <p class="fbc-question" id="feedback-question">
            Did you find the information on this page useful?
        </p>

        <!-- checkboxes -->
        <div class="fbc-checkboxes">
            <!-- yes -->

            <div id="yesno-yes-block" class="fbc-checkboxes-yes">
                <input id="yesno-yes" type="radio" name="yesno" value="1"
autocomplete="off">
                <label id="yesno-yes-label" for="yesno-yes" data-wap_ref="results-
delivered:yes">
                    <span style="vertical-align: middle;">
                        Yes
                    </span>
                </label>
            </div>

            <!-- no -->
            <div id="yesno-no-block" class="fbc-checkboxes-no">

                <input id="yesno-no" type="radio" name="yesno" value="0"
autocomplete="off">
                <label id="yesno-no-label" for="yesno-no" data-wap_ref="results-
delivered:no">

                    <span style="vertical-align: middle;">
                        No
                    </span>
                </label>
            </div>

            <div class="fbc_yesno_error"><span id="yesno-error" aria-
live="polite"></span></div>
        </div>

        <!-- comments -->
        <div class="fbc-comments">
            <!-- textarea -->
            <label class="fbc_comments_label" for="yesno-comment">

```

```

        <span>
            How could we improve the page?
        </span>
    </label>
    <textarea id="yesno-comment" name="yesno-comment" rows="5"
maxlength="500" autocomplete="off" aria-describedby="yesno-comment-
count"></textarea>

    <!-- character count -->
    <p id="yesno-comment-count" class="fbc-character-count">Characters
remaining: <span id="yesno-remaining-characters">500</span></p>
</div>

```

```

    <input type="hidden" id="errServerError" value="There was an error.
Please try again.">

```

```

    <!-- submit -->
    <div class="fbc-submit">
        <button type="button" id="fbc-submit" data-
wap="{&quot;message&quot;:&quot;message_not_added&quot;}" data-
wap_ref="feedback_modal_send">
            Send Feedback

```

```

        </button>
    </div>
    <div id="feedbackModal" class="feedbackmodal">
        <div class="feedbackmodal-content">
            <div class="fbc-feedbackheader">
                <p>Feedback Message</p>
            </div>
            <div class="feedbackmessage">
                <p aria-live="polite" id="feedbacksentmessage"></p>
            </div>
            <div class="fbc-submitok">
                <button type="button" id="fbc-submitok" aria-
hidden="true">Ok</button>
            </div>
        </div>
    </div>
</div>

```

```

</section>
</div>

```

```

    </div>
</div>

```

```

<script src="https://cdnjs.cloudflare.com/ajax/libs/mathjax/2.7.1/MathJax.js?
config=TeX-MML-AM_CHTML" id=""></script>
<script
src="/etc.clientlibs/settings/wcm/clientlibs/ckeditor/resources/prism.js"></
script>

```

<div class="disclaimer parbase">

<div class="translationDisclaimer parbase">

</div>

</div>

```
<div class="helpModule getHelpComponent parbase">
```

```
    <div id="getHelpComponent-1" class="component get-help-module"
data-component="getHelpComponent" data-component-id="1">
        <aside id="gethelp" class="right fixed-bottom hidden" role="dialog"
data-help-config-url="/libs/intel/get-help.us_en.default" style="display: none;">
            <div class="wrapper">
```

```
                <div class="navbar" aria-label="Get Help Dialog Header">
                    <a name="gethelp_button" id="gethelp_button"></a>
```

```
                        <button class="container-fluid navbar-toggler btn btn-primary
collapsed d-flex justify-content-between" type="button" data-toggle="collapse"
data-target="#gethelp-accordion" aria-controls="gethelp-accordion" aria-
expanded="false" aria-label="Get Help Dialog" data-btn-ref="get-help" data-
wap="" data-wap_ref="get-help-collapsed">
```

```
                            <span class="navbar-toggler-icon-gethelp chat-icon icon align-icons
fa-user-headset" aria-hidden="true" title=""></span>
```

```
                                <span id="gethelp-heading" class="navbar-toggler-title"
aria-hidden="true">Get Help</span>
```

```
                                    <span class="navbar-toggler-icon-close icon align-icons fa-
cancel-thin" aria-hidden="true" title="Close Get Help Dialog"></span>
```

```
                                </button>
                            </div>
```

```
                <ul id="gethelp-accordion" class="accordion panel-group
collapse" data-allow-toggle="" aria-label="Accordion">
                    </ul>
```

```
            </div>
```

```
        </aside>
    </div>
    <link rel="stylesheet"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/get-
help.min.css" type="text/css"><script
src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/get-
help.min.js" defer=""></script>
```

```
</div>
```

```
</main>
```

```
<footer class="global blade solid brand-lighter-gray theme-light-2 component"
data-component-id="1" data-component="footer" role="contentinfo" data-
wap_type="wa_skip_track" id="skip-footer">
    <div class="container">
        <div class="content-footer">
            <div class="content">
```

```
<ul class="footer-links">

    <li>
        <a
href="/content/www/us/en/company-overview/company-
overview.html">Company Overview</a>
    </li>

    <li>
        <a href="/content/www/us/en/support/contact-
intel.html">Contact Intel</a>
    </li>

    <li>
        <a
href="/content/www/us/en/newsroom/home.html">Newsroom</a>
    </li>

    <li>
        <a href="https://www.intc.com/">Investors</a>
    </li>

    <li>
        <a href="/content/www/us/en/jobs/jobs-at-
intel.html">Careers</a>
    </li>

    <li>
        <a
href="/content/www/us/en/corporate-responsibility/corporate-
responsibility.html">Corporate Responsibility</a>
    </li>

    <li>
        <a href="/content/www/us/en/diversity/diversity-at-
intel.html">Diversity & Inclusion</a>
    </li>

    <li>
        <a
href="/content/www/us/en/company-overview/public-policy.html">Public
Policy</a>
    </li>

</ul>
```



```

<ul class="footer-links social">

    <li>
        <a href="https://www.facebook.com/Intel" target=""
aria-label="Intel on Facebook" data-
wap="{&quot;linktype&quot;:&quot;footersocial&quot;}">
            <i aria-hidden="true" class="fa-facebook"></i>
        </a>
    </li>

    <li>
        <a href="https://twitter.com/intel" target="" aria-
label="Intel on Twitter" data-
wap="{&quot;linktype&quot;:&quot;footersocial&quot;}">
            <i aria-hidden="true" class="fa-twitter"></i>
        </a>
    </li>

    <li>
        <a href="https://www.linkedin.com/company/intel-
corporation" target="" aria-label="Intel on LinkedIn" data-
wap="{&quot;linktype&quot;:&quot;footersocial&quot;}">
            <i aria-hidden="true" class="fa-linkedin"></i>
        </a>
    </li>

    <li>
        <a href="https://www.youtube.com/user/channelintel?
sub_confirmation=1" target="" aria-label="Intel on YouTube" data-
wap="{&quot;linktype&quot;:&quot;footersocial&quot;}">
            <i aria-hidden="true" class="fa-youtube"></i>
        </a>
    </li>

    <li>
        <a href="https://www.instagram.com/intel/" target=""
aria-label="Intel on Instagram" data-
wap="{&quot;linktype&quot;:&quot;footersocial&quot;}">
            <i aria-hidden="true" class="fa-instagram"></i>
        </a>
    </li>

</ul>

```

```

<ul class="footer-links secondary-links"
id="footerSecondaryLinks">

```

</li>

<small>© Intel Corporation</small>

</li>

<li>

use.html">  
    <a href="/content/www/us/en/legal/terms-of-  
        <small>Terms of Use</small>  
    </a>

</li>

<li>

    <a  
href="/content/www/us/en/legal/trademarks.html">  
        <small>\*Trademarks</small>  
    </a>

</li>

<li>

    <a href="/content/www/us/en/privacy/intel-  
cookie-notice.html" data-cookie-notice="true">  
        <small>Cookies</small>  
    </a>

</li>

<li>

privacy-notice.html">  
<a href="/content/www/us/en/privacy/intel-  
<small>Privacy</small>  
</a>

</li>

<li>

<a href="/content/www/us/en/corporate-  
responsibility/statement-combating-modern-slavery.html">  
<small>Supply Chain Transparency  
</small>  
</a>

</li>

<li>

<a  
href="/content/www/us/en/siteindex.html">  
<small>Site Map</small>  
</a>

</li>

</ul>

<div class="footer-disclaimer">

<p>Intel technologies may require enabled hardware, software or service activation. // No product or component can be absolutely secure. // Your costs and results may vary. // Performance varies by use, configuration and other factors. // See our complete legal <u><a href="https://edc.intel.com/content/www/us/en/products/performance/benchmarks/overview/#GUID-26B0C71C-25E9-477D-9007-52FCA56EE18C">Notices and Disclaimers</a></u>. // Intel is committed to respecting human rights and avoiding complicity in human rights abuses. See Intel's <a href="https://www.intel.com/content/www/us/en/policy/policy-human-rights.html"><u>Global Human Rights Principles</u></a>. Intel's products and software are intended only to be used in applications that do not cause or contribute to a violation of an internationally recognized human right.</p>

</div>

</div>

<div class="logo-container">

<a href="/content/www/us/en/homepage.html" class="footer-logo-rebrand" aria-label="Intel Footer Logo" title="Intel Footer Logo">



</a>

</div>

</div>

</div>

</footer>

<textarea id="defers" title="" style="display:none;">

&lt;script&gt;var isTargetEnabled =false;&lt;/script&gt;

```
&lt;script type="text/javascript"&gt;
  var cq_tms = {
    wa_emtcontenttype:
"emtcontenttype:designanddevelopmentreference/developerguide/developeruse
rguide",
    wa_primarycontenttagging:
"primarycontenttagging:intelfpgas/intelprogrammabledevices,primarycontenttag
ging:intelfpgas/intelprogrammabledevices/intelmax/
intelmax10fpgas,primarycontenttagging:intelfpgas/
intelfpgaintellectualproperty/basicfunctions",
```

```
wa_curated: "curated:donotuseinexternalfilters/recommended",
wa_emtsubject: "emtsubject:design/fpgadesign/remotesystemupgrades",

wa_industry_type: "",
wa_partner_prog: "",
wa_subject: "",
wa_biz_size: "",
wa_emt_org: "",
wa_emt_intel: "",
wa_partner_type: "",
wa_programidentifier: "",
wa_location: "us",
wa_language: "en",
wa_english_title: "3.5. Accessing Remote System Upgrade through User
Logic",
wa_content_type: "",
wa_intel_platform: "",
wa_applications: "",
wa_local: "en_US",
wa_intel_technology: "",
wa_system_type: "",
wa_product_name: "",
wa_audience:
"emtaudience:business/btssbusinesstechnologiesolutionspecialist/developer/
fpgaengineer",
wa_life_cycle: "",
wa_cq_url:
"/content/www/us/en/docs/programmable/683865/current/accessing-remote-
system-upgrade-through.html",
wa_page_type_micro: "udeDocumentationDetail",
wa_env: "prd",
wa_cq_pub_env: "publish",
wa_transl_status: "",
wa_product_id: "98847,216704,216704,215648",
wa_software: "",
wa_reference_design: "",
wa_codename: "",
wa_created_date: "1639788876436",
wa_modified_date: "1639788876442",
wa_off_time: "1924992000000",
wa_ownedby: "",
wa_managedby: "",
wa_idz_nid : "",
wa_event_type: "",
wa_idz_custom_tags: "",
wa_programming_language: "",
wa_skill_level: "",
wa_solution: "",
wa_product_formFactor: "",
wa_operating_system: "",
wa_marketing_products: "",
wa_ssg_third_party_prod_sys_sol: "",
wa_upeNamespace: "",
wa_doc_id:"683865",
```

```
    wa_doc_version:"current",
    wa_doc_publishdate:"5/26/2022",

    wa_secondary_content_type:
"emtcontenttype:designanddevelopmentreference/developerguide/developeruse
rguide"

};
```

```
cq_tms.wa_tms_sync_load = "deferred";

</script>
```

```
<script type="text/javascript">
    var chatContextObj = {};
    chatContextObj["locale"] = 'en-US';
    chatContextObj["app"] = 'PSG';
    chatContextObj["supportProductMap"] = 'NA';
</script>
<script src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/
detect-idsa.min.js" defer></script>
```

```
<script type="text/javascript"
src="/content/dam/www/global/wap/tms.sync.js" async></script>
```

```
<script>!function(){var e=setInterval(function(){"undefined"!=typeof $CQ&&($CQ(function(){CQ_Analytics.SegmentMgr.loadSegments("/etc/segmentation"),CQ_Analytics.ClientContextUtils.init("/etc/clientcontext/intel",window.location.pathname.substr(0,window.location.pathname.indexOf(".")))}),clearInterval(e))},100)}();</script>
```

&lt;/textarea&gt;

<div id="onSiteonRTag"></div><script>clearTimeout(onsTimerB);cn=onsCookie;window.onsCookieExp=30;onsslconURI='R0IGODlhRgBGAKIEAPb6/fv9/v///wBxxf///wAAAAAAAAAACH/C05FVFNDQVBFMi4wAwEAAAh/wtYTVAgRGF0YVhNUDw/eHBhY2tldCBiZWdpbjoi77u/liBpZD0iVzVNME1wQ2VoaUh6cmVTek5UY3prYzlkIj8+IDx4OnhtcG1ldGEgeG1sbnM6eD0iYWVrYmU6bnM6bWV0YS8ilHg6eG1wdGs9IkFkb2JlIFhNUCBDb3JlIDIuMy1jMDExIDY2LjE0NTY2MSwgMjAxMi8wMi8wNi0xNDo1NjoyNyAgICAgICAgIj4gPHJkZjpSREYgeG1sbnM6cmRmpPSiodHRwOi8vd3d3LnczLm9yZy8xOTk5LzAyLzlyLXJkZi1zeW50YXgtbnMijlj4gPHJkZjpEZXRnclwgdGlubiByZGY6YWVkdXQ9IligeG1sbnM6eG1wP SjodHRwOi8vbniMuYWRvYmUuY29tL3hhcC8xLjAvLiB4bWxuczp4bXBNTT0iaHRoC D ovL25zLmFkb2JlImNvbS94YXAvMS4wL21tLyIgeG1sbnM6c3RSZWY9Imh0dHA6Ly9ucy5hZG9iZS5jb20veGFwLzEuMC9zVHlwZS9ScXNvdXJjZVJlZiMiIHhtcDpDcmVhd G9yVG9vbD0iQWRvYmUgUGhvZG9zaG9wIENTNlAoV2luZG93cykilHhteE1NOkluc3 RhbmNISUQ9InhtcC5paWQ6ODlyRUQwNzYxMkY0MTFFNjkYRDE4MORGODA2MjYw RUUIlHhteE1NOkrVy3vtZW50SUO9InhtcC5kaWO6ODlvRUOWnzcxMkY0MTFFNiky



RDE4M0RGODA2MjYwRUUiPiA8eG1wTU06RGVyaXZlZEZyb20gc3RSZWY6aW5zdG  
FuY2VJRd0ieG1wLmlpZDo4MjJFRDA3NDEyRjQxMUU2OTJEMTgzREY4MDYyNjBFRSl  
gc3RSZWY6ZG9jdW1lbnRJRd0ieG1wLmRpZDo4MjJFRDA3NTEyRjQxMUU2OTJEMT  
gzREY4MDYyNjBFRSlvPiA8L3JkZjpEZXNjcmlwdGlvbj4gPC9yZGY6UkRGPiA8L3g6e  
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r5+Pf29fTz8vHw7+7t7Ovq6ejn5uXk4+Lh4N/  
e3dzb2tnY19bV1NPS0dDPzs3My8rJyMfGxcTDwsHAv769vLu6ubi3trW0s7KxsK+ur  
ayrqmqop6alpKOioaCfnp2cm5qZmJeWlZSTkpGQj46NjluKiYiHhoWEg4KBgH9+fXx  
7enl4d3Z1dHNycXBvbm1sa2ppaGdmZWRjYmFgX15dXFtaWVhXVIVUU1JRUE9OT  
UxLSklIR0ZFRENCQUA/  
Pj08Ozo5ODc2NTQzMjEwLy4tLCsqKSgnjiUklylhlB8eHRwbGhkYFxyVFBMSERAPDg  
0MCwojCacGBQQDAgEAACH5BAXcBQQALAAAAABGAEEYAAAP/SDTc/  
jDKSataNevNGe5gKI5kaZ5oqq5s675wLM90bd94ru987/+2gHBILAlhAYFyyVwGjo9  
kcyp4QhtSKtN6HWS1Su71CxZDyVrzEU1VA9IT9w/elKuKeGIUvJXR+w5/  
Tn58g4GFYYSIZoKJMY1Ve4uKhYylkY+XlpOZnFialHybIRx5ppKkh54ZkKOiqK8brbBl  
Gml0Kqpn6sVs7qxvLusucLBDL8aycjFzL0Uy17N0s8T0dfT0NPY1RLcw9Tg2r3fx77b  
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xosWLGDNq3MixCqNHCh88XviolAEAlfkEBQ0ABAAsBwARADcAHQAAA25lutz+kl1J  
q404Y8ur/  
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gz+nhMAIfkEBQ0ABAAsBwARADcAlQAAA2Jlutzw9MMrpqr14aom7r1v4jV+4kSgWr  
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ANwAaAAADZUi63D0wymqvXhqibuvW/iNX7iR6GVqafusnCsTQW3f9qzvfO//  
wKBwSCwaj8gGbnllLgKCqHQqDTgVUKpWYL1mt9PuDib5gqNiHTliPqdna0gb/  
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EvpxGF5MOAQJACH5BAUNAAQALAcAFQA3ABoAAANvGLrc9DDKSWsMluutg/  
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+QPNeEgXBILPJ8LGBxSTzmOhKm1Pk0RaVL6hNlaHgVvG7VGr4hS9xy6ExKq0Vj99  
syntvv+Lx+z+/  
7/4CBFV+Egg9sHHJ7iDqGBHUJACH5BAUNAAQALAcAEQA3ABsAAANbGLrc9DDKS  
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ADZDi63PQwyklrbJjZzXf+XSgSXzaeVomhrKQ6bfqxUWDfeC7PihQlwKAwGNjxfMMk  
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AkAlfkEBQ0ABAAsBwAVADcAGgAAA2plutwdMMrpqr04iM07D1goVppnCuCoixZp  
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lpHLjbDqf0MZgSq1aowurtopVbL9dwndbnJgIY20ZuAmkr0Qdzf2mrtmgs9kod9mgf  
Sd/  
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aaZwrgqlrl2aVrbLmebN94ru987//  
AoHBILBqPyKRYqZs4JcwWDRWdfqpW6lJkgyW5Lm8yK2Caz+iBes1uM9tw9jsen9Pd  
yzvcrlebn05mCQA+QQFDQAEACwHABEANwAhAAADZUi63D0wymqvXhqibuvW  
/  
iNX7iRKBasbMumcCzPdG3feK7vfOX+rd4lICgaj8aA0EJEogXKpaP5PEalDGq1eMUqt  
Nuul7A9js/otHrNbrvf8LgcDqynwVUxFv/US/  
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pCBSauNOGMguv8eol3kwlGolJYsdKbf2s7LC3cyPdt3rrM8mO9HCqaGRIORhUxubjG  
dZVppLEFNJTRk3eKkXlXXm81co5Jw+Ukeb9eRMzfdpsm/  
9De4XIPv9XlQVIM+d2KBPYaFfohCim6CklmMfXwKio+NR5KOJjeeJmqZIYCKgqOfIqF  
kqKulqW+tsqKgs6y1uLeqtrG5r66nvpGaTLzDppO7wsm/  
xsZhsNDaZz2cm8RYhFNW2IUS3RQJADs=';onsKey=0;function  
ONS\_sCookie(n,v,e,d){var cdate=new Date();if(e)cdate.setTime(cdate.getTime()  
+(e\*24\*60\*60\*1000));dD.cookie=n+'='+escape(v)+  
(e?';expires='+cdate.toGMTString():'')+ (d?';domain='+d:':  
+';path=/;secure;samesite=none;'}function ONS\_showIcon(n){var  
chat=document.getElementsByClassName('embeddedServiceHelpButton');if(chat.length==0)chat=document.getElementsByClassName('avaamo\_\_chat\_\_widget');var position=(chat.length==0?'right':'left');var  
onObj=ONS\_getObj('onSiteonRTag');onObj.innerHTML='<A title="'+onsPmsg+"  
name="onsitelink" href="'+onsPATH+ONS\_getCoreScript()+?  
s=22&geo='+onsKey+ONS\_getPBVS('&')+"" target="onsitesurvey" style="text-decoration:none" onclick="ONS\_collectDataLake(); return  
ONS\_getSurvey();"><FIGURE id="survey-icon" style="position:fixed;z-index:998;bottom:2em;'+position+':1em;cursor:pointer;background-color:#0081d6;border-radius:2px;box-shadow:2px 2px 0px  
rgba(0,0,0,0.15);"><IMG alt="Survey icon"  
src="data:image/gif;base64,'+onsIconURI+" border="0" width="70"  
height="70"/></FIGURE></A>';onObj.style.cssText='';onObj.style.display='block';}window.ONS\_setStage=function(n,a){var  
onObj=dD.createElement('script');onObj.src=onsPATH+'j\_stagescript.asp?  
s='+n+'&r='+encodeURIComponent(onsCURL)  
+'&a='+a+ONS\_getPBVS('&');dD.body.appendChild(onObj);};window.ONS\_getOn  
ResearchWebID=function(){var sid=onsUSID||ONS\_gCookie(cn+'SID');var  
m=sid.indexOf('M');if(sid==''||m==-1||m+14>sid.length){return sid;}else{var  
sid1=sid.substring(0,4);var sid2=sid.substring(4,8);var  
sid3=sid.substring(m+2,m+6);var sid4=sid.substring(m+6,m+10);var  
sid5=sid.substring(m+10,m+14);return  
sid1+'-'+sid2+'-'+sid3+'-'+sid4+'-'+sid5;}};window.ONS\_detectLanguageObject  
=function(){if(window.location.href.indexOf('channeltraining.intel.com')!=-1)  
{onsKey=(typeof \_\_lang!='undefined'?(\_\_lang=='de\_DE'?5:\_\_lang=='zh\_CN'?  
3:\_\_lang=='zh\_TW'?8:\_\_lang=='fr\_FR'?1:\_\_lang=='it\_IT'?13:\_\_lang=='ja\_JA'?  
4:\_\_lang=='ko\_KO'?9:\_\_lang=='pl\_PL'?17:\_\_lang=='pt\_PT'?6:\_\_lang=='ru\_RU'?  
2:\_\_lang=='es\_ES'?7:\_\_lang=='th\_TH'?15:\_\_lang=='tr\_TR'?14:\_\_lang=='vi\_VI'?  
16:\_\_lang=='es\_MX'?12:0):0);}else  
if(window.location.href.indexOf('community.intel.com')!=-1){onsKey=(typeof  
ighf\_lang!='undefined'? (ighf\_lang=='de\_DE'?5:ighf\_lang=='zh\_CN'?  
3:ighf\_lang=='zh\_TW'?8:ighf\_lang=='fr\_FR'?1:ighf\_lang=='it\_IT'?  
13:ighf\_lang=='ja\_JP'?4:ighf\_lang=='ko\_KR'?9:ighf\_lang=='pt\_BR'?  
6:ighf\_lang=='ru\_RU'?2:ighf\_lang=='es\_XL'?12:0):0);}else  
if(window.location.href.indexOf('partneruniversity.intel.com')!=-1)  
{onsKey=(typeof \_\_lang!='undefined'?(\_\_lang=='de'?5:\_\_lang=='zh'?  
3:\_\_lang=='tw'?8:\_\_lang=='fr'?1:\_\_lang=='it'?13:\_\_lang=='ja'?4:\_\_lang=='ko'?  
9:\_\_lang=='pl'?17:\_\_lang=='pt'?6:\_\_lang=='ru'?2:\_\_lang=='es'?7:\_\_lang=='th'?  
15:\_\_lang=='tr'?14:\_\_lang=='vi'?16:\_\_lang=='mx'?12:0):0);}else  
if(window.location.href.indexOf('partner.intel.com')!=-1||  
window.location.href.indexOf('points.intel.com')!=-1){onsKey=(typeof langAry!  
='undefined'&&langAry.length==2?(langAry[0]+langAry[1]=='dede'?  
5:langAry[0]+langAry[1]=='zhcn'?3:langAry[0]+langAry[1]=='zhtw'?  
8:langAry[0]+langAry[1]=='frfr'?1:langAry[0]+langAry[1]=='itit'?  
13:langAry[0]+langAry[1]=='jajp'?4:langAry[0]+langAry[1]=='kokr'?}

```

9:langAry[0]+langAry[1]== 'plpl'?17:langAry[0]+langAry[1]== 'ptbr'?
6:langAry[0]+langAry[1]== 'ruru'?2:langAry[0]+langAry[1]== 'eses'?
7:langAry[0]+langAry[1]== 'thth'?15:langAry[0]+langAry[1]== 'trtr'?
14:langAry[0]+langAry[1]== 'vivn'?16:langAry[0]+langAry[1]== 'esxl'?
12:0):0);}};ONS_detectLanguageObject();window.ONS_detectATObject=function(
){if(typeof wap_at_meta!='undefined'&&typeof wap_at_meta.length!
='undefined'){if(wap_at_meta.length>0&&typeof wap_at_meta[0].experience!
='undefined')return wap_at_meta[0].experience.toLowerCase().replace(/
/g, '_');}return ''};window.ONS_setSiteExp=function(){var
exp=ONS_detectATObject();if(exp!=''){var onCObj=new Image();var t=new
Date();onCObj.src=onsPATH+'j_saveExpInfo.asp?
sid='+onsUSID+'&tid='+Date.UTC(t.getFullYear(),t.getMonth()
+1,t.getDate(),t.getHours(),t.getMinutes(),t.getSeconds())
+'&cUrl='+encodeURIComponent(dD.location)
+'&exp='+encodeURIComponent(exp);}};setTimeout('ONS_setSiteExp()',2000);
window.onsHashPB=['partneruniversity.intel.com','marketplace.intel.com','partn
er.intel.com','points.intel.com','/support/contact-
intel.html'];window.ONS_setHashPB=function(){var hpb=false;for(var
i=0;i<onsHashPB.length;i++){if(onsCURL.indexOf(onsHashPB[i])!=-1)
{hpb=true;break;}}if(hpb){sot=setInterval(function(){if(onsCURL!
=window.location.href){var onPValue=new Image();var t=new
Date();onPValue.src=onsPATH+'j_saveHashInfo.asp?
t='+Date.UTC(t.getFullYear(),t.getMonth()
+1,t.getDate(),t.getHours(),t.getMinutes(),t.getSeconds())
+'&r='+encodeURIComponent(location.href)
+ONS_getPBVS('&');onsCURL=window.location.href;if(typeof
ONS_setSiteLanguage!
='undefined')ONS_setSiteLanguage();}},3000);}};window.ONS_gIDSAAction=fun
ction(tag){var
p='https://onsite2.researchintel.com/engine/j_saveIDSAInfo.asp';var
sid=ONS_gCookie('intelresearchSID');var
uid=ONS_gCookie('intelresearchUID');var gid=ONS_gCookie('gawap');var i=new
Image();var t=new Date();i.src=p+'?t='+Date.UTC(t.getFullYear(),t.getMonth()
+1,t.getDate(),t.getHours(),t.getMinutes(),t.getSeconds())
+'&sid='+sid+'&uid='+uid+'&gid='+gid+'&r='+encodeURIComponent(location.
href+'#'+tag);}};window.ONS_collectDataLake=function(){var
cid,vid,aid;cid=(typeof utag_data!='undefined'&&typeof
utag_data['wa_client_id']!='undefined'?utag_data['wa_client_id']:'';vid=(typeof
utag_data!='undefined'&&typeof utag_data['wa_visit_id']!='undefined'?
utag_data['wa_visit_id']:'';aid=(typeof adobe_org_id!
='undefined'&&ONS_gCookie('adobe_org_id')!='')?
ONS_gCookie('adobe_org_id'):'';if(cid!=''||vid!=''||aid!=''){var datalake=new
Image();var t=new Date();var qs='?
sid='+onsUSID+'&t='+Date.UTC(t.getFullYear(),t.getMonth()
+1,t.getDate(),t.getHours(),t.getMinutes(),t.getSeconds());qs+='&cid='+encode
URIComponent(cid);qs+='&vid='+encodeURIComponent(vid);qs+='&aid='+enc
odeURIComponent(aid);datalake.src=onsPATH+'saveDataLake.asp'+qs;}};functi
on ONS_launchYNInvite(){if((ONS_gCookie('inteliqresearch')== '1'||
ONS_gCookie('inteliqresearch2')== '1')&&ONS_gCookie('cn+REF').indexOf('.intel.'
)==-1)
{if(ONS_gCookie('inteliqresearch')== '1')ONS_sCookie('inteliqresearch','2',cdv,ch)
;if(ONS_gCookie('inteliqresearch2')== '1')ONS_sCookie('inteliqresearch2','2',cdv,c
h);setTimeout('ONS_popYNInvite()',30000);}}function ONS_popYNInvite()
{if(ONS_gCookie('inteliqresearch')== '2')ONS_sCookie('inteliqresearch','3',cdv,ch)

```

```

if(ONS_gCookie('inteligresearch2')==='2')ONS_sCookie('inteligresearch2','3',cdv,
h);(onObj=dD.createElement('DIV');onObj.id='feedback-widget';var
onFT=['Give Feedback','Donnez votre avis','\u041E\u0441\u0442\u0430\u0432\
\u044C\u0442\u0435 \u043E\u0442\u0437\u044B\u0432','\u63D0\u4F9B\u53CD\
\u9988','\u3054\u610F\u898B\u30FB\u3054\u8981\u671B','Feedback
senden','Fornecer feedback','Dejar comentario','\u63D0\u4F9B\u610F\u898B\
\u56DE\u994B','\uD53C\uB4DC\uBC31 \uC81C\uACF5','Give Feedback','Give
Feedback','Dejar comentario','Fornisci il tuo feedback','Geri Bildirimde Bulunun','\
\u0E43\u0E2B\u0E49\u0E04\u0E27\u0E32\u0E21\u0E04\u0E34\u0E14\u0E40\
\u0E2B\u0E47\u0E19','G\u1EEDi ph\u1EA3n h\u1ED3i','Czekamy na Twoj\u0105
opini\u0119','Berikan Umpan Balik','Donnez votre avis','Give Feedback','\u05D4\
\u05E2\u05E0\u05E7 \u05DE\u05E9\u05D5\u05D1','Give Feedback','Give
Feedback'];var onQT=['Did you find the information you were looking for?','Vous
avez trouv\u00E9 les informations que vous recherchez\u00A0?','\u0412\u044B \
\u043D\u0430\u0448\u043B\u0438 \u0438\u043D\u0444\u043E\u0440\u043C\
\u0430\u0446\u0438\u044E, \u043A\u043E\u0442\u043E\u0440\u0443\u044E \
\u0438\u0441\u043A\u0430\u043B\u0438?','\u60A8\u662F\u5426\u627E\u5230\
\u4E86\u60A8\u9700\u8981\u7684\u4FE1\u606F\uFF1F','\u304A\u63A2\u3057\
\u306E\u60C5\u5831\u306F\u898B\u3064\u304B\u308A\u307E\u3057\u305F\
\u304B\uFF1F','Haben Sie die Informationen gefunden, die Sie suchen?','Voc\
\u00EA encontrou as informa\u00E7\u00F5es que estava procurando?','\u00BFHa
encontrado la informaci\u00F3n que buscaba?','\u60A8\u662F\u5426\u627E\
\u5230\u4E86\u60A8\u60F3\u5C0B\u627E\u7684\u8CC7\u8A0A\uFF1F','\u06D0\
\uD558\uB294 \uC815\uBCF4\uB97C \uCC3E\uC73C\uC168\uC2B5\uB2C8\
\uAE4C?','Did you find the information you were looking for?','Did you find the
information you were looking for?','\u00BFEncontr\u00F3 la informaci\u00F3n
que estaba buscando?','Hai trovato le informazioni che stavi cercando?','Arad\
\u0131\u011F\u0131n\u0131z bilgiyi bulabildiniz mi?','\u0E04\u0E38\u0E13\
\u0E1E\u0E1A\u0E02\u0E49\u0E2D\u0E21\u0E39\u0E25\u0E17\u0E35\u0E48\
\u0E04\u0E49\u0E19\u0E2B\u0E32\u0E2B\u0E23\u0E37\u0E2D\u0E44\u0E21\
\u0E48','B\u1EA1n c\u00F3 t\u00ECm th\u1EA5y th\u00F4ng tin m\u00E0 b\
\u1EA1n mu\u1ED1n t\u00ECm kh\u00F4ng?','Czy uda\u0142o Ci si\u0119 znale\
\u017A\u0107 potrzebne informacje?','Apakah Anda menemukan informasi yang
Anda cari?','Vous avez trouv\u00E9 les informations que vous recherchez?','Did
you find the information you were looking for?','\u05DE\u05E6\u05D0\u05EA \
\u05D0\u05EA \u05D4\u05DE\u05D9\u05D3\u05E2 \u05E9\u05D7\u05D9\u05E4\
\u05E9\u05EA?','Did you find the information you were looking for?','Did you find
the information you were looking for?'];var onYT=['Yes','Oui','\u0414\u0430','\
\u662F','\u306F\u3044','Ja','Sim','S\u00ED','\u662F','\u0608','Yes','Yes','S\
\u00ED','S\u00EC','Evet','\u0E43\u0E0A\u0E48','C\u00F3','Tak','Ya','Oui','Yes','\
\u05DB\u05DF','Yes','Yes'];var onNT=['No','Non','\u0412\u0435\u0442','\u5426','\
\u3044\u3044\u3048','Nein','N\u00E3o','No','\u5426','\uC544\uB2C8\
uC694','No','No','No','No','Hay\u0131r','\u0E44\u0E21\u0E48\u0E43\u0E0A\
\u0E48','Kh\u00F4ng','Nie','Tidak','Non','No','\u05DC\u05D0','No','No'];var
onBT=['Send','Envoyer','\u041E\u0442\u043F\u0440\u0430\u0432\u0438\u0442\
\u044C','\u53D1\u9001','\u9001\u4FE1','Senden','Enviar','Enviar','\u05B3\u9001','\
uC804\uC1A1','Send','Send','Enviar','Invia','G\u00F6nder','\u0E2A\u0E48\
\u0E07','G\u1EEDi','Wy\u015Blij','Kirim','Envoyer','Send','\u05E9\u05DC\
\u05D7','Send','Send'];var onD1T=['We appreciate all feedback, but cannot reply
or give product support. Please do not enter contact information. If you require a
response, ','\u00E9anmoins, nous ne pouvons pas vous r\u00E9pondre, ni fournir d\
assistance produits. Si vous avez besoin d\une r\u00E9ponse, ','\u0412\u044B \u0440\
\u0430\u044B\u043B\u044E\u0431\u044B\u043C \u0432\u0430\u0448\u0438\

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[illegible]

nie mo\u017Cemy udzieli\u0107 odpowiadzi ani wsparcia produktowego. Je\u015Bli potrzebujesz odpowiedzi, ',Kami menghargai semua umpan balik, tapi tidak dapat membalas atau memberikan dukungan produk. Jika Anda membutuhkan tanggapan, ',Nous vous remercions pour vos commentaires. N\u00E9anmoins, nous ne pouvons pas vous r\u00E9pondre, ni fournir d'assistance produits. Si vous avez besoin d'une r\u00E9ponse, ',We appreciate all feedback, but cannot reply or give product support. Please do not enter contact information. If you require a response, ',\u05D0\u05E0\u05D5 \u05DE\u05E2\u05E8\u05D9\u05DB\u05D9\u05DD \u05DB\u05DC \u05DE\u05E9\u05D5\u05D1, \u05D0\u05DA \u05D0\u05D9\u05E0\u05E0\u05D5 \u05D9\u05DB\u05D5\u05DC\u05D9\u05DD \u05DC\u05D4\u05E9\u05D9\u05D1 \u05D0\u05D5 \u05DC\u05D4\u05E2\u05E0\u05D9\u05E7 \u05EA\u05DE\u05D9\u05DB\u05D4 \u05D1\u05DE\u05D5\u05E6\u05E8. \u05D0\u05DD \u05D0\u05EA\u05D4 \u05D6\u05E7\u05D5\u05E7 \u05DC\u05EA\u05D2\u05D5\u05D1\u05D4, ',We appreciate all feedback, but cannot reply or give product support. Please do not enter contact information. If you require a response, ',We appreciate all feedback, but cannot reply or give product support. Please do not enter contact information. If you require a response, '];var onD2T=['contact support.','contactez l\u2019assistance.','\u043E\u0431\u0440\u0430\u0442\u0438\u0442\u0435\u0441\u0441\u044C \u0432 \u0432\u0438\u0434\u0430\u0436\u0435\u043F\u043E\u0434\u0430\u043A\u0438.', '\u08BF7\u08054\u07CFB\u0652F\u06301\u090E8\u095E8\u03002', '\u030B5\u030DD\u030FC\u030C8\u0306B\u0304A\u0554F\u03044\u05408\u0308F\u0305B\u0304F\u03060\u03055\u03044\u03002', 'wenden Sie sich bitte an den Support.', 'entre em contato com o suporte.', 'p\u00F3ngase en contacto con soporte.', '\u0ACB\u0806F\u07D61\u0652F\u063F4\u03002', '\u0C9C0\u0C6D0\u0D300\u0C5D0 \u0BB38\u0C758 \u0BC14\u0B78D\u0B2C8\u0B2E4.', 'contact support.', 'contact support.', 'p\u00F3ngase en contacto con el servicio de asistencia.', 'contatta il supporto.', '\u00FCtfen Destek b\u00F6l\u00FCm\u00FCne ba\u015Fvurun.', '\u0E01\u0E23\u0E38\u0E13\u0E32\u0E15\u0E34\u0E14\u0E15\u0E48\u0E2D\u0E1D\u0E48\u0E32\u0E22\u0E1A\u0E23\u0E34\u0E01\u0E32\u0E23\u0E2A\u0E19\u0E31\u0E1A\u0E2A\u0E19\u0E38\u0E19', 'xin li\u00EAn h\u01EC7 nh\u00F3m h\u01EDD7 tr\u01EE3.', 'skontaktuj si\u0119 z pomoc\u0105 techniczn\u0105.', 'hubungi dukungan.', 'contactez l'assistance.', 'contact support.', '\u05E6\u05D5\u05E8 \u05E7\u05E9\u05E8 \u05E2\u05DD \u05D4\u05EA\u05DE\u05D9\u05DB\u05D4.', 'contact support.', 'contact support.'];var onLT=['https://www.intel.com/content/www/us/en/support/contact-intel.com', 'https://www.intel.fr/content/www/fr/fr/support/contact-intel.com', 'https://www.intel.ru/content/www/ru/ru/support/contact-intel.com', 'https://www.intel.cn/content/www/cn/zh/support/contact-intel.com', 'https://www.intel.co.jp/content/www/jp/ja/support/contact-intel.com', 'https://www.intel.de/content/www/de/de/support/contact-intel.com', 'https://www.intel.com.br/content/www/br/pt/support/contact-intel.com', 'https://www.intel.es/content/www/es/es/support/contact-intel.com', 'https://www.intel.com.tw/content/www/tw/zh/support/contact-intel.com', 'https://www.intel.co.kr/content/www/kr/ko/support/contact-intel.com', 'https://www.intel.sg/content/www/xa/en/support/contact-intel.com', 'https://www.intel.co.uk/content/www/uk/en/support/contact-intel.com', 'https://www.intel.la/content/www/xl/es/support/contact-intel.com', 'https://www.intel.it/content/www/it/it/support/contact-intel.com', 'https://www.intel.com.tr/content/www/tr/tr/support/contact-intel.com', 'https://www.thailand.intel.com/content/www/th/th/support/contact-intel.com', 'https://www.intel.vn/content/www/vn/vi/support/contact-intel.com', 'https://www.intel.pl/content/www/pl/pl/support/contact-

intel.com', 'https://www.intel.co.id/content/www/id/id/support/contact-intel.com', 'https://www.intel.ca/content/www/ca/fr/support/contact-intel.com', 'https://www.intel.ca/content/www/ca/en/support/contact-intel.com', 'https://www.intel.co.il/content/www/us/en/support/contact-intel.com', 'https://www.intel.com.au/content/www/au/en/support/contact-intel.com', 'https://www.intel.in/content/www/in/en/support/contact-intel.com'];onObj.innerHTML='<div style="height:40px;padding-top:0;padding-right:15px;padding-bottom:0;padding-left:15px;margin:0;color:#FFFFFF;background-color:#00AEEF;font-family:\'intel-clear\','\'Intel-Clear\','\'intel clear\','\'Intel Clear\','\'intelclear\','\'IntelClear\','\'Tahoma\','\'tahoma\','\'Helvetica\','\'helvetica\','\'Arial,sans-serif;font-size:16px;line-height:1;font-weight:bold;"><h2 style="display:inline-block;vertical-align:middle;margin-top:7px;margin-bottom:0;padding:0;color:#FFFFFF;font-family:\'intel-clear\','\'Intel-Clear\','\'intel clear\','\'Intel Clear\','\'intelclear\','\'IntelClear\','\'Tahoma\','\'tahoma\','\'Helvetica\','\'helvetica\','\'Arial,sans-serif;font-size:16px;line-height:1;font-weight:bold;">'+onFT[onsKey]+'</h2><button type="button" style="display:inline-block;vertical-align:middle;float:right;margin-top:5px;margin-bottom:0;padding:.3125em;cursor:pointer;background-color:transparent;border-color:transparent;color:#FFFFFF;font-family:\'intel-clear\','\'Intel-Clear\','\'intel clear\','\'Intel Clear\','\'intelclear\','\'IntelClear\','\'Tahoma\','\'tahoma\','\'Helvetica\','\'helvetica\','\'Arial,sans-serif;font-size:18px;line-height:1;font-weight:normal;" onclick="ONS\_closeYN();">X</button></div><div style="padding:15px;background-color:#FFFFFF;border-left:solid 1px #D7D7D7;color:#555555;"><p style="padding:0;margin-top:0;margin-bottom:15px;text-align:center;color:#555555;font-family:\'intel-clear\','\'Intel-Clear\','\'intel clear\','\'Intel Clear\','\'intelclear\','\'IntelClear\','\'Tahoma\','\'tahoma\','\'Helvetica\','\'helvetica\','\'Arial,sans-serif;font-size:14px;line-height:1.25;font-weight:normal;">'+onQT[onsKey]+'</p><div style="margin-top:0;padding-left:0;margin-bottom:15px;text-align:center;"><div id="feedback-yes-block" style="display:inline-block;width:70px;height:30px;margin-right:20px;padding:0;text-align:left;" onclick="ONS\_clickFeedback(1);"><input id="feedback-yes" type="radio" style="display:none;margin:0;padding:0;border:none;outline:none;-moz-user-select:none;" name="feedback-yes-no" value="1" autocomplete="off" /><label for="feedback-yes" style="box-sizing:border-box;display:inline-block;vertical-align:middle;margin:0;padding:0;background-color:transparent;background-image:url(https://www.intel.com/etc.clientlibs/settings/wcm/designs/ver/201112/intel/clientlibs/supportLibs/resources/images/support/yes-no-sprite.png);background-repeat:no-repeat;background-position:right top;text-align:left;cursor:pointer;width:31px;height:30px;border:solid 1px #FFFFFF;"><span style="display:inline-block;margin:0px 0px 0px 35px;padding:0;vertical-align:text-middle;text-align:left;text-transform:uppercase;color:#555555;font-family:\'intel-clear\','\'Intel-Clear\','\'intel clear\','\'Intel Clear\','\'intelclear\','\'IntelClear\','\'Tahoma\','\'tahoma\','\'Helvetica\','\'helvetica\','\'Arial,sans-serif;font-size:14px;line-height:28px;font-weight:normal;height:28px;width:50px;">'+onYT[onsKey]+'</span></label></div>

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div><div id="feedback-no-block" style="display:inline-
block;width:70px;height:30px;margin:0;padding:0;text-align:left;"
onclick="ONS_clickFeedback(2);"><input id="feedback-no" type="radio"
style="display:none;margin:0;padding:0;border:none;outline:none;-moz-user-
select:none;" name="feedback-yes-no" value="2" autocomplete="off" /><label
for="feedback-no" style="box-sizing:border-box;display:inline-block;vertical-
align:middle;margin:0;padding:0;background-color:transparent;background-
image:url(https://www.intel.com/etc.clientlibs/settings/wcm/designs/ver/201112/
intel/clientlibs/supportLibs/resources/images/support/yes-no-
sprite.png);background-repeat:no-repeat;background-position:right top;text-
align:left;cursor:pointer;width:31px;height:30px;border:solid 1px
#FFFFFF;"><span style="display:inline-block;margin:0px 0px 0px
35px;padding:0;vertical-align:text-middle;text-align:left;text-
transform:uppercase;color:#555555;font-family:\'intel-clear\','Intel-Clear\','intel
clear\','Intel
Clear\','intelclear\','IntelClear\','Tahoma\','tahoma\','Helvetica\','helvetica\','Arial,sa
ns-serif;font-size:14px;line-height:28px;font-
weight:normal;height:28px;width:50px;">'+onNT[onsKey]+'</span></
label></div></div><div style="text-align:center;"><button type="button"
onclick="ONS_submitYN();" style="margin-top:0;margin-
bottom:15px;padding:.25em 4em;border:none;border-
radius:3px;cursor:pointer;background-color:#00AEEF;color:#FFFFFF;font-
family:\'intel-clear\','Intel-Clear\','intel clear\','Intel
Clear\','intelclear\','IntelClear\','Tahoma\','tahoma\','Helvetica\','helvetica\','Arial,sa
ns-serif;font-size:16px;line-height:1.25;font-weight:normal;">'+onBT[onsKey]
+'</button></div><p style="padding:0;margin-top:0;margin-
bottom:0;color:#BBBBBB;font-family:\'intel-clear\','Intel-Clear\','intel
clear\','Intel
Clear\','intelclear\','IntelClear\','Tahoma\','tahoma\','Helvetica\','helvetica\','Arial,sa
ns-serif;font-size:12px;line-height:1.25;font-weight:normal;">'+onD1T[onsKey]
+'<a href="'+onLT[onsKey]+'"' style="text-decoration:none;color:#0071C5;font-
family:\'intel-clear\','Intel-Clear\','intel clear\','Intel
Clear\','intelclear\','IntelClear\','Tahoma\','tahoma\','Helvetica\','helvetica\','Arial,sa
ns-serif;font-size:12px;line-height:1.25;font-weight:normal;"
target="_blank">'+onD2T[onsKey]+'</a></p></div>';onObj.style.cssText='dis
play:block;position:fixed;z-index:9998;bottom:15px;right:15px;background-
color:rgba(0,0,0,.2);width:90%;min-width:270px!important;max-width:400px!
important;height:auto;margin:0;padding-right:.5em;padding-
bottom:.5em;';dD.body.appendChild(onObj);}function ONS_clickFeedback(v){var
onObj;if(v==1){ONS_getObj('feedback-
yes').checked=true;ONS_getObj('feedback-
no').checked=false;onObj=ONS_getObj('feedback-yes-
block');onObj.getElementsByTagName('label')[0].style.backgroundColor = 'left
top';onObj=ONS_getObj('feedback-no-
block');onObj.getElementsByTagName('label')[0].style.backgroundColor =
'right top';}else{ONS_getObj('feedback-
yes').checked=false;ONS_getObj('feedback-
no').checked=true;onObj=ONS_getObj('feedback-yes-
block');onObj.getElementsByTagName('label')[0].style.backgroundColor =
'right top';onObj=ONS_getObj('feedback-no-
block');onObj.getElementsByTagName('label')[0].style.backgroundColor = 'left
top';}}function ONS_closeYN()
{ONS_sCookie('inteliqresearch','4',cd,ch);ONS_sCookie('inteliqresearch2','4',cd,c
h);var onObj=ONS_getObj('feedback-

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widget');if(onObj)onObj.style.display='none';}function ONS_submitYN(){var
onAT=['Please provide an answer to the question(s).','Veuillez fournir une r\
u00E9ponse \u00E0 la ou aux questions.','\u041F\u043E\u0436\u0430\u043B\
u0443\u0439\u0441\u0442\u0430, \u043E\u0442\u0432\u0435\u0442\u044C\
u0442\u0435 \u043D\u0430 \u0432\u043E\u043F\u0440\u043E\u0441\u044B.','\
u8BF7\u63D0\u4F9B\u95EE\u9898\u7684\u7B54\u6848\u3002','\u8CEA\u554F\
u306B\u56DE\u7B54\u3057\u3066\u304F\u3060\u3055\u3044\u3002','Bitte
geben Sie eine Antwort auf die Frage(n) an.','Forne\u00E7a uma resposta para
a(s) pergunta(s).','Proporcione una respuesta a la(s) pregunta(s).','\u0ACB\
u63D0\u4F9B\u554F\u984C\u7684\u7B54\u6848\u3002','\u0C9C\uBB38\uC5D0 \
uB2F5\uD574 \u0C8F\uC2ED\uC2DC\uC624.','Please provide an answer to the
question(s).','Please provide an answer to the question(s).','Proporcione una
respuesta a la(s) pregunta(s).','Fornisca una risposta alla domanda (alle
domande).','Sorular\u0131 yan\u0131tlay\u0131n.','\u0E42\u0E1B\u0E23\u0E14\
\u0E23\u0E30\u0E1A\u0E38\u0E04\u0E33\u0E15\u0E2D\u0E1A\u0E2A\u0E33\
\u0E2B\u0E23\u0E31\u0E1A\u0E04\u0E33\u0E16\u0E32\u0E21','\u00F2ng tr\
\u1EA3 \u1EDD\u00E1c \u00E2u h\u1ECF.','Podaj odpowied\u017A na
pytania.','Silakan berikan jawaban untuk pertanyaan.','Veuillez fournir une r\
u00E9ponse \u00E0 la ou aux questions.','Please provide an answer to the
question(s).','\u05E0\u05D0 \u05DC\u05E2\u05E0\u05D5\u05EA \u05E2\u05DC \
\u05D4\u05E9\u05D0\u05DC\u05D5\u05EA.','Please provide an answer to the
question(s).','Please provide an answer to the question(s).'];var onLC=['en-
US','fr-FR','ru-RU','zh-CN','ja-JP','de-DE','pt-BR','es-ES','zh-TW','ko-KR','en-XA','en-
UK','es-XL','it-IT','tr-TR','th-TH','vi-VN','pl-PL','id-ID','fr-CA','en-CA','he-IL','en-
AU','en-IN'];var onA1='';var onA3='0';if(ONS_gCookie('inteliqresearch')==='3')
{onA3='1';}var onObj=ONS_getObj('feedback-
yes');if(onObj&&onObj.checked)onA1='1';onObj=ONS_getObj('feedback-
no');if(onObj&&onObj.checked)onA1='2';if(onA1=='')
{wN.alert(onAT[onsKey]);return;}else if(ONS_gCookie('inteliqresearch')==='3')||
ONS_gCookie('inteliqresearch2')==='3')
{onObj=dD.createElement('script');onObj.src=dD.location.protocol+'//
onsite2.researchintel.com/xWidget/httpPost/W14JT015.ashx?
onYesNo='+encodeURIComponent(onA1)+'&ss='+wN.screen.width+'x'+wN.scre
en.height+'&onCurl='+encodeURIComponent(dD.location)
+'&a3='+encodeURIComponent(onA3)+'&onRUrl='+encodeURIComponent(ONS
_gCookie(cn+'REF'))+'&onLang='+encodeURIComponent(onLC[onsKey])
+'&sid='+encodeURIComponent(onsUSID)
+'&uid='+encodeURIComponent(onsUUID);dD.body.appendChild(onObj);}ONS_cl
oseYN();ONS_collectDataLake();}function ONS_CDCollect()
{if(ONS_gCookie(cn+'STG')==='16')||ONS_gCookie(cn+'STG')==='24'||
ONS_gCookie(cn+'STG')==='33'){var
cd1,cd17,cd18,cd20,cd34,cd37,cd40,cd41;cd1=(typeof utag_data!
='undefined'&&typeof utag_data['wa_geo']!=='undefined')?
utag_data['wa_geo']:'';cd17=(typeof utag_data!=='undefined'&&typeof
utag_data['wa_target_audience']!=='undefined')?
utag_data['wa_target_audience']:'';cd18=(typeof utag_data!
='undefined'&&typeof utag_data['wa_resource_type']!=='undefined')?
utag_data['wa_resource_type']:'';cd20=(typeof utag_data!=='undefined'&&typeof
utag_data['content_org_initiative']!=='undefined')?
utag_data['content_org_initiative']:'';cd34=(typeof utag_data!
='undefined'&&typeof utag_data['wa_system_type']!=='undefined')?
utag_data['wa_system_type']:'';cd37=(typeof utag_data!=='undefined'&&typeof
utag_data['wa_topic']!=='undefined')?utag_data['wa_topic']:'';cd40=(typeof
utag_data!=='undefined'&&typeof utag_data['target_campaign_recipe_name']!

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= 'undefined')? utag_data['target_campaign_recipe_name']: ''; cd41 = (typeof
utag_data != 'undefined' && typeof utag_data['wa_emt_org'] != 'undefined')?
utag_data['wa_emt_org']: ''; if (cd1 != '' || cd17 != '' || cd18 != '' || cd20 != '' || cd34 != '' ||
cd37 != '' || cd40 != '' || cd41 != '') { var cdcollect = new Image(); var t = new Date(); var
qs = '?cUrl=' + encodeURIComponent(ONS_gURL(dD.location, true))
+ '&t=' + Date.UTC(t.getFullYear(), t.getMonth()
+ 1, t.getDate(), t.getHours(), t.getMinutes(), t.getSeconds()); qs += '&cd1=' + encode
URIComponent(cd1); qs += '&cd17=' + encodeURIComponent(cd17); qs += '&cd18='
+ encodeURIComponent(cd18); qs += '&cd20=' + encodeURIComponent(cd20); qs +=
'&cd34=' + encodeURIComponent(cd34); qs += '&cd37=' + encodeURIComponent(
cd37); qs += '&cd40=' + encodeURIComponent(cd40); qs += '&cd41=' + encodeURIC
omponent(cd41); cdcollect.src = onsPATH + 'saveCDData.asp' + qs; } } wN.yn_header
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useful?';wN.yn_question_text2='How likely is it that you would recommend Intel
to a friend or colleague?';wN.yn_question_text3='Please tell us how we can
improve the experience to better meet your
needs?';wN.yn_yes_text='Yes';wN.yn_no_text='No';wN.yn_nps_text0='Not at All
Likely';wN.yn_nps_text10='Extremely
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appreciate all feedback, but cannot reply or give product support. If you require
a response, ';wN.yn_disclaimer_link_text='contact
support.';wN.yn_submit_text='Send';wN.yn_alert_text='Please provide an answer
to the question(s).';wN.yn_success_text='Thank you for your
participation!';wN.yn_lang='en-US';wN.yn_contact_url='https://www.intel.com/
content/www/us/en/support/contact-
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informations vous ont-elles \u00E9t\u00E9 utiles\
\u00A0?';wN.yn_question_text2='Dans quelle mesure seriez-vous susceptible de
recommander Intel \u00E0 un ami ou coll\
\u00E8gue ?';wN.yn_question_text3='Veuillez nous dire comment nous pouvons
am\u00E9liorer l'exp\u00E9rience pour mieux r\u00E9pondre \u00E0 vos
besoins\
\u00A0?';wN.yn_yes_text='Oui';wN.yn_no_text='Non';wN.yn_nps_text0='Pas du
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probable';wN.yn_placeholder_text='Commentaires\
\u00A0';wN.yn_disclaimer_body_text='Nous vous remercions pour vos
commentaires. N\u00E9anmoins, nous ne pouvons pas vous r\u00E9pondre, ni
fournir d'assistance produits. Si vous avez besoin d'une r\u00E9ponse,
';wN.yn_disclaimer_link_text='contactez l\
\u00E9assistance.';wN.yn_submit_text='Envoyer';wN.yn_alert_text='Veuillez
fournir une r\u00E9ponse \u00E0 la ou aux
questions.';wN.yn_success_text='Nous vous remercions pour votre participation \
\u00E0 cette
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content/www/fr/fr/support/contact-intel.com';}if(onsKey==2)
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\u044C \u0442\u043E\u0433\u043E, \u0447\u0447\u043E \u0432\u044B \u043F\
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772\u0773\u0774\u0775\u0776\u0777\u0778\u
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coment\u00E1rios, mas n\u00E3o podemos responde-los ou fornecer suporte para produtos. Se voc\u00EA precisar de uma resposta, 'wN.yn\_disclaimer\_link\_text='entre em contato com o suporte.';wN.yn\_submit\_text='Enviar';wN.yn\_alert\_text='Forne\u00E7a uma resposta para a(s) pergunta(s).';wN.yn\_success\_text='Muito obrigado por participar desta pesquisa.';wN.yn\_lang='pt-BR';wN.yn\_contact\_url='https://www.intel.com.br/content/www/br/pt/support/contact-intel.com';}if(onsKey==7){wN.yn\_feedback\_text='Dejar comentario';wN.yn\_question\_text='\u00BFLa ha resultado \u00FAtil esta informaci\u00F3n?';wN.yn\_question\_text2='\u00BFCu\u00E1 es la probabilidad de que recomiende Intel a un amigo o colega?';wN.yn\_question\_text3='Cu\u00E9ntenos c\u00F3mo podemos mejorar la experiencia para satisfacer mejor sus necesidades.';wN.yn\_yes\_text='S\u00ED';wN.yn\_no\_text='No';wN.yn\_nps\_text0='Sumanente improbable';wN.yn\_nps\_text10='Sumamente probable';wN.yn\_placeholder\_text='Comentarios:';wN.yn\_disclaimer\_body\_text='Agradecemos todos los comentarios, pero no podemos responder o proporcionar asistencia para productos. Si necesita una respuesta, 'wN.yn\_disclaimer\_link\_text='p\u00F3ngase en contacto con el servicio de asistencia.';wN.yn\_submit\_text='Enviar';wN.yn\_alert\_text='Proporcione una respuesta a la(s) pregunta(s).';wN.yn\_success\_text='Le agradecemos que haya dedicado su tiempo a completar esta encuesta.';wN.yn\_lang='es-ES';wN.yn\_contact\_url='https://www.intel.es/content/www/es/es/support/contact-intel.com';}if(onsKey==8){wN.yn\_feedback\_text='\u63D0\u4F9B\u610F\u898B\u8207\u5EFA\u8B70';wN.yn\_question\_text='\u9019\u500B\u8CC7\u8A0A\u5C0D\u60A8\u662F\u5426\u6709\u5E6B\u52A9\u5462\uFF1F';wN.yn\_question\_text2='\u60A8\u6709\u6C92\u6709\u53EF\u80FD\u5411\u670B\u53CB\u6216\u540C\u4E8B\u63A8\u85A6\u4F7F\u7528 Intel\uFF1F';wN.yn\_question\_text3='\u8ACB\u544A\u8A34\u6211\u5011\u8A72\u5982\u4F55\u6539\u5584\u9AD4\u9A57\uFF0C\u4EE5\u66F4\u52A0\u6EFF\u8DB3\u60A8\u7684\u9700\u6C42\uFF1F';wN.yn\_yes\_text='\u662F';wN.yn\_no\_text='\u5426';wN.yn\_nps\_text0='\u6975\u4E0D\u53EF\u80FD';wN.yn\_nps\_text10='\u6975\u6709\u53EF\u80FD';wN.yn\_placeholder\_text='\u610F\u898B\uFF1A';wN.yn\_disclaimer\_body\_text='\u6211\u5011\u5341\u5206\u611F\u8B1D\u6240\u6709\u7684\u610F\u898B\u53CD\u61C9\uFF0C\u4F46\u7121\u6CD5\u56DE\u8986\u6216\u7D66\u4E88\u7522\u54C1\u652F\u63F4\u3002\u5982\u679C\u60A8\u9700\u8981\u56DE\u8986\uFF0C';wN.yn\_disclaimer\_link\_text='\u8ACB\u806F\u7D61\u652F\u63F4\u3002';wN.yn\_submit\_text='\u50B3\u9001';wN.yn\_alert\_text='\u8ACB\u63D0\u4F9B\u554F\u984C\u7684\u7B54\u6848\u3002';wN.yn\_success\_text='\u611F\u8B1D\u60A8\u64A5\u5197\u5B8C\u6210\u9019\u4EFD\u554F\u5377\u8ABF\u67E5\u3002';wN.yn\_lang='zh-TW';wN.yn\_contact\_url='https://www.intel.com.tw/content/www/tw/zh/support/contact-intel.com';}if(onsKey==9){wN.yn\_feedback\_text='\uD53C\uB4DC\uBC31';wN.yn\_question\_text='\uC774 \uC815\uBCF4\uAC00 \uB3C4\uC6C0\uC774 \uB418\uC168\uB098uC694?';wN.yn\_question\_text2='\uC778\uD154\uC744 \uCE5C\uAD6C\uB098 \uB3D9\uB8CC\uC5D0\uAC8C \uCD94\uCC9C\uD560\uAC00\uB2A5\uC131\uC774 \uC5B4\uB290 \uC815\uB3C4 \uB429\uB2C8\uAE4C?';wN.yn\_question\_text3='\uADC0\uD558uC758 \uD544uC694\uB97C \uB354 \uC798 \uCC44\uC6B8 \uC218 \uC788\uB294 \uD658\uACBD\uC744 \uAC1C\uC120\uD560 \uBC29\uBC95uC744 \uC800\uD76C\uC5D0\uAC8C \uC54C\uB824uC8FC\uC138uC694.';wN.yn\_yes\_text='\uC608';wN.yn\_no\_text='\uC544\uB2C8uC694';wN.yn\_nps\_text0='\uC804\uD600 \uBD88\uAC00\uB2A5';wN.yn\_nps\_text10='\uB9E4uC6B0 \uAC00\uB2A5';wN.yn\_placeholder\_text='\uC124\uBA85';wN.yn\_disclaimer\_body\_text=''

uD53C\uB4DC\uBC31\uC744 \uC8FC\uC154\uC11C \uAC10\uC0AC\uD569\uB2C8\uB2E4. \uD68C\uC2E0\uC744 \uB4DC\uB9AC\uAC70\uB098 \uC81C\uD488 \uC9C0\uC6D0\uC740 \uC81C\uACF5\uD574 \uB4DC\uB9B4 \uC218 \uC5C6\uC73C\uB2C8 \uC591\uD574 \uBD80\uD0C1\uB4DC\uB9BD\uB2C8\uB2E4. \uC751\uB2F5\uC774 \uD544\uC694 \uD558\uC2DC\uBA74  
';wN.yn\_disclaimer\_link\_text='\uC9C0\uC6D0\uD300\uC5D0 \uBB38\uC758 \uBC14\uB78D\uB2C8\uB2E4.';wN.yn\_submit\_text='\uC804\uC1A1';wN.yn\_alert\_text='\uC9C8\uBB38\uC5D0 \uB2F5\uD574 \uC8FC\uC2ED\uC2DC\uC624.';wN.yn\_success\_text='\uBCF8 \uC124\uBB38 \uC870\uC0AC\uC5D0 \uC751\uD574 \uC8FC\uC154\uC11C \uAC10\uC0AC\uD569\uB2C8\uB2E4.';wN.yn\_lang='ko-KR';wN.yn\_contact\_url='https://www.intel.co.kr/content/www/kr/ko/support/contact-intel.com';};if(onsKey==10){wN.yn\_feedback\_text='Give Feedback';wN.yn\_question\_text='Did you find this information useful?';wN.yn\_question\_text2='How likely is it that you would recommend Intel to a friend or colleague?';wN.yn\_yes\_text='Yes';wN.yn\_no\_text='No';wN.yn\_nps\_text0='Not at All Likely';wN.yn\_nps\_text10='Extremely Likely';wN.yn\_placeholder\_text='Comments:';wN.yn\_disclaimer\_body\_text='We appreciate all feedback, but cannot reply or give product support. If you require a response, ';wN.yn\_disclaimer\_link\_text='contact support.';wN.yn\_submit\_text='Send';wN.yn\_alert\_text='Please provide an answer to the question(s).';wN.yn\_success\_text='Thank you for your participation!';wN.yn\_lang='en-XA';wN.yn\_contact\_url='https://www.intel.sg/content/www/xa/en/support/contact-intel.com';};if(onsKey==11){wN.yn\_feedback\_text='Give Feedback';wN.yn\_question\_text='Did you find this information useful?';wN.yn\_question\_text2='How likely is it that you would recommend Intel to a friend or colleague?';wN.yn\_yes\_text='Yes';wN.yn\_no\_text='No';wN.yn\_nps\_text0='Not at All Likely';wN.yn\_nps\_text10='Extremely Likely';wN.yn\_placeholder\_text='Comments:';wN.yn\_disclaimer\_body\_text='We appreciate all feedback, but cannot reply or give product support. If you require a response, ';wN.yn\_disclaimer\_link\_text='contact support.';wN.yn\_submit\_text='Send';wN.yn\_alert\_text='Please provide an answer to the question(s).';wN.yn\_success\_text='Thank you for your participation!';wN.yn\_lang='en-UK';wN.yn\_contact\_url='https://www.intel.co.uk/content/www/uk/en/support/contact-intel.com';};if(onsKey==12){wN.yn\_feedback\_text='Dejar comentario';wN.yn\_question\_text='\u00BFLe pareci\u00F3 \u00FAtil esta informaci\u00F3n?';wN.yn\_question\_text2='\u00BFCu\u00E1n probable es que recomiende a Intel a un amigo o colega?';wN.yn\_question\_text3='Por favor, d\u00E9ganos c\u00F3mo podemos mejorar la experiencia para satisfacer mejor sus necesidades.';wN.yn\_yes\_text='S\u00ED';wN.yn\_no\_text='No';wN.yn\_nps\_text0='Nada probable';wN.yn\_nps\_text10='Sumamente probable';wN.yn\_placeholder\_text='Comentarios:';wN.yn\_disclaimer\_body\_text='Agradecemos todos los comentarios, pero no podemos responder o proporcionar asistencia para productos. Si necesita una respuesta, ';wN.yn\_disclaimer\_link\_text='p\u00F3ngase en contacto con el servicio de asistencia.';wN.yn\_submit\_text='Enviar';wN.yn\_alert\_text='Proporcione una respuesta a la(s) pregunta(s).';wN.yn\_success\_text='Le agradecemos por haber dedicado su tiempo a completar esta encuesta.';wN.yn\_lang='es-XL';wN.yn\_contact\_url='https://www.intel.la/content/www/xl/es/support/contact-intel.com';};if(onsKey==13){wN.yn\_feedback\_text='Fornisci il tuo feedback';wN.yn\_question\_text='Queste informazioni sono state

[illegible]



u0E48';wN.yn\_no\_text='\u0E44\u0E21\u0E48\u0E43\u0E0A\u0E48';wN.yn\_nps\_text0='\u0E44\u0E21\u0E48\u0E41\u0E19\u0E48\u0E19\u0E2D\u0E19';wN.yn\_nps\_text10='\u0E40\u0E1B\u0E47\u0E19\u0E44\u0E1B\u0E44\u0E14\u0E49\u0E2D\u0E22\u0E48\u0E32\u0E07\u0E21\u0E32\u0E01';wN.yn\_placeholder\_text='\u0E02\u0E49\u0E2D\u0E04\u0E34\u0E14\u0E40\u0E2B\u0E47\u0E19';wN.yn\_disclaimer\_body\_text='\u0E40\u0E23\u0E32\u0E22\u0E34\u0E19\u0E14\u0E35\u0E23\u0E31\u0E1A\u0E17\u0E38\u0E01\u0E04\u0E27\u0E32\u0E21\u0E04\u0E34\u0E14\u0E40\u0E2B\u0E47\u0E19 \u0E41\u0E15\u0E48\u0E44\u0E21\u0E48\u0E2A\u0E32\u0E21\u0E32\u0E23\u0E16\u0E15\u0E2D\u0E1A\u0E01\u0E25\u0E31\u0E1A\u0E2B\u0E23\u0E37\u0E2D\u0E43\u0E2B\u0E49\u0E01\u0E32\u0E23\u0E2A\u0E19\u0E31\u0E1A\u0E2A\u0E19\u0E38\u0E19\u0E14\u0E49\u0E32\u0E19\u0E1C\u0E25\u0E34\u0E15\u0E20\u0E31\u0E13\u0E11\u0E4C\u0E44\u0E14\u0E49 \u0E16\u0E49\u0E32\u0E04\u0E38\u0E13\u0E15\u0E49\u0E2D\u0E07\u0E01\u0E32\u0E23\u0E04\u0E33\u0E15\u0E2D\u0E1A';wN.yn\_disclaimer\_link\_text='\u0E01\u0E23\u0E38\u0E13\u0E32\u0E15\u0E34\u0E14\u0E15\u0E48\u0E2D\u0E1D\u0E48\u0E32\u0E22\u0E1A\u0E23\u0E34\u0E01\u0E32\u0E23\u0E2A\u0E19\u0E31\u0E1A\u0E2A\u0E19\u0E38\u0E19';wN.yn\_submit\_text='\u0E2A\u0E48\u0E07';wN.yn\_alert\_text='\u0E42\u0E1B\u0E23\u0E14\u0E23\u0E30\u0E1A\u0E38\u0E04\u0E33\u0E15\u0E2D\u0E1A\u0E2A\u0E33\u0E2B\u0E23\u0E31\u0E1A\u0E04\u0E33\u0E16\u0E32\u0E21';wN.yn\_success\_text='\u0E02\u0E2D\u0E1A\u0E04\u0E38\u0E13\u0E17\u0E35\u0E48\u0E2A\u0E25\u0E30\u0E40\u0E27\u0E25\u0E32\u0E17\u0E33\u0E41\u0E1A\u0E1A\u0E2A\u0E2D\u0E1A\u0E16\u0E32\u0E21\u0E19\u0E35\u0E49';wN.yn\_lang='th-TH';wN.yn\_contact\_url='https://www.thailand.intel.com/content/www/th/th/support/contact-intel.com';}if(onsKey==16){wN.yn\_feedback\_text='\u00DD Ki\u1EBFn Ph\u1EA3n H\u1ED3i';wN.yn\_question\_text='B\u1EA1n c\u00F3 th\u1EA5y th\u00F4ng tin n\u00E0y h\u1EEFu d\u1EE5ng kh\u00F4ng?';wN.yn\_question\_text2='How likely is it that you would recommend Intel to a friend or colleague?';wN.yn\_question\_text3='Vui l\u00F2ng cho ch\u00Fang t\u00F4i bi\u1EBFt c\u00E1c ch\u00Fang t\u00F4i c\u00F3 th\u1EC3 c\u1EA3i thi\u1EC7n tr\u1EA3i nghi\u1EC7m \u0111\u1EC3 \u0111\u00E9p \u1EE9ng t\u1ED1t h\u01A1n nh\u00F9 c\u1EA7u c\u1EE7a b\u1EA1n?';wN.yn\_yes\_text='C\u00F3';wN.yn\_no\_text='Kh\u00F4ng';wN.yn\_nps\_text0='Not at All Likely';wN.yn\_nps\_text10='Extremely Likely';wN.yn\_placeholder\_text='Nh\u1EADn x\u00E9t';wN.yn\_disclaimer\_body\_text='Ch\u00Fang t\u00F4i r\u1EA5t tr\u00E2n tr\u1ECDng m\u1ECDi ph\u1EA3n h\u1ED3i, nh\u01B0ng kh\u00F4ng th\u1EC3 tr\u1EA3 l\u1EDDi ho\u1EB7c h\u1ED7 tr\u1EE3 s\u1EA3n ph\u1EA9m. N\u1EBFu b\u1EA1n c\u1EA7n c\u00F3 c\u00E2u tr\u1EA3 l\u1EDDi ph\u1EA3n h\u1ED3i, ';wN.yn\_disclaimer\_link\_text='xin li\u00EAn h\u1EC7 nh\u00F3m h\u1ED7 tr\u1EE3.';wN.yn\_submit\_text='G\u1EEDi';wN.yn\_alert\_text='Vui l\u00F2ng tr\u1EA3 l\u1EDDi c\u00E1c c\u00E2u h\u1ECFi.';wN.yn\_success\_text='Ca\u0309m \u01A1n ba\u0323n \u0111\u0303a\u0300nh th\u01A1\u0300i gian ho\u0300a\u0300nh kh\u1EA3o s\u00E1t.';wN.yn\_lang='vi-VN';wN.yn\_contact\_url='https://www.intel.vn/content/www/vn/vi/support/contact-intel.com';}if(onsKey==17){wN.yn\_feedback\_text='Czekamy na Twój\u0105 opini\u0119';wN.yn\_question\_text='Czy te informacje by\u0142y dla Ciebie za przydatne?';wN.yn\_question\_text2='How likely is it that you would recommend Intel to a friend or colleague?';wN.yn\_question\_text3='Poinformuj nas, jak mo\u017Cemy poprawi\u0107 jako\u015B\u0107 us\u0142ug, aby lepiej spe\u0142nia\u0107 Twoje potrzeby?';wN.yn\_yes\_text='Tak';wN.yn\_no\_text='Nie';wN.yn\_nps\_text0='Not at All Likely';wN.yn\_nps\_text10='Extremely

Likely';wN.yn\_placeholder\_text='Komentarze:';wN.yn\_disclaimer\_body\_text='Jest e\u015Bmy wdzi\u0119czni za wszystkie komentarze, ale nie mo\u017Cemy udzieli\u0107 odpowiedzi ani wsparcia produktowego. Je\u015Bli potrzebujesz odpowiedzi, ';

wN.yn\_disclaimer\_link\_text='skontaktuj si\u0119 z pomoc\u0105 techniczn\u0105.';wN.yn\_submit\_text='Wy\u015Blij';wN.yn\_alert\_text='Podaj odpowied\u017A na pytania.';wN.yn\_success\_text='Dzi\u0119kujemy za czas po\u015Bwi\u0119cony na wype\u0142nienie tej ankiety.';wN.yn\_lang='pl-PL';wN.yn\_contact\_url='https://www.intel.pl/content/www/pl/pl/support/contact-intel.com';}

if(onsKey==18){wN.yn\_feedback\_text='Berikan Umpan Balik';wN.yn\_question\_text='Apakah informasi ini berguna?';wN.yn\_question\_text2='Seberapa besar kemungkinan Anda akan merekomendasikan Intel kepada teman atau kolega?';wN.yn\_question\_text3='Sampaikan bagaimana kami dapat meningkatkan pengalaman untuk memenuhi kebutuhan Anda dengan lebih baik?';wN.yn\_yes\_text='Ya';wN.yn\_no\_text='Tidak';wN.yn\_nps\_text0='Tidak Sama sekali';wN.yn\_nps\_text10='Sangat Mungkin';wN.yn\_placeholder\_text='Komentar:';wN.yn\_disclaimer\_body\_text='Kami menghargai semua umpan balik, tapi tidak dapat membalas atau memberikan dukungan produk. Jika Anda membutuhkan tanggapan, ';

wN.yn\_disclaimer\_link\_text='hubungi dukungan.';wN.yn\_submit\_text='Kirim';wN.yn\_alert\_text='Silakan berikan jawaban untuk pertanyaan.';wN.yn\_success\_text='Terima kasih atas partisipasi Anda!';wN.yn\_lang='id-ID';wN.yn\_contact\_url='https://www.intel.co.id/content/www/id/id/support/contact-intel.com';}

if(onsKey==19){wN.yn\_feedback\_text='Donnez votre avis';wN.yn\_question\_text='Ces informations vous ont-elles \u00E9t\u00E9 utiles?';wN.yn\_question\_text2='Dans quelle mesure seriez-vous susceptible de recommander Intel \u00E0 un ami ou coll\u00E8gue ?';wN.yn\_question\_text3='Dites-nous comment nous pouvons am\u00E9liorer votre exp\u00E9rience afin de mieux r\u00E9pondre \u00E0 vos besoins ?';wN.yn\_yes\_text='Oui';wN.yn\_no\_text='Non';wN.yn\_nps\_text0='Pas du tout probable';wN.yn\_nps\_text10='Hautement probable';wN.yn\_placeholder\_text='Commentaires\u00A0';wN.yn\_disclaimer\_body\_text='Nous vous remercions pour vos commentaires. N\u00E9anmoins, nous ne pouvons pas vous r\u00E9pondre, ni fournir d\u2032assistance produits. Si vous avez besoin d\u2032une r\u00E9ponse, ';

wN.yn\_disclaimer\_link\_text='contactez l\u2032assistance.';wN.yn\_submit\_text='Envoyer';wN.yn\_alert\_text='Veuillez fournir une r\u00E9ponse \u00E0 la ou aux questions.';wN.yn\_success\_text='Merci de votre participation!';wN.yn\_lang='fr-CA';wN.yn\_contact\_url='https://www.intel.ca/content/www/ca/fr/support/contact-intel.com';}

if(onsKey==20){wN.yn\_feedback\_text='Give Feedback';wN.yn\_question\_text='Did you find this information useful?';wN.yn\_question\_text2='How likely is it that you would recommend Intel to a friend or colleague?';wN.yn\_question\_text3='Please tell us how we can improve the experience to better meet your needs?';wN.yn\_yes\_text='Yes';wN.yn\_no\_text='No';wN.yn\_nps\_text0='Not at All Likely';wN.yn\_nps\_text10='Extremely Likely';wN.yn\_placeholder\_text='Comments:';wN.yn\_disclaimer\_body\_text='We appreciate all feedback, but cannot reply or give product support. If you require a response, ';

wN.yn\_disclaimer\_link\_text='contact support.';wN.yn\_submit\_text='Send';wN.yn\_alert\_text='Please provide an answer to the question(s)';wN.yn\_success\_text='Thank you for your participation!';wN.yn\_lang='en-CA';wN.yn\_contact\_url='https://www.intel.ca/content/www/ca/en/support/contact-intel.com';}

if(onsKey==21)

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{wN.yn_feedback_text='\u05D4\u05E2\u05E0\u05E7 \u05DE\u05E9\u05D5\u05D1';wN.yn_question_text='\u05D4\u05D0\u05DD \u05DE\u05D9\u05D3\u05E2 \u05D6\u05D4 \u05E9\u05D9\u05DE\u05D5\u05E9\u05D9 \u05DC\u05D3\u05E2\u05EA\u05DA?';wN.yn_question_text2='How likely is it that you would recommend Intel to a friend or colleague?';wN.yn_question_text3='\u05E1\u05E4\u05E8 \u05DC\u05E0\u05D5 \u05DB\u05D9\u05E6\u05D3 \u05E0\u05D5\u05DB\u05DC \u05DC\u05E9\u05E4\u05E8 \u05D0\u05EA \u05D4\u05D7\u05D5\u05D5\u05D9\u05D4 \u05DB\u05D3\u05D9 \u05DC\u05E2\u05E0\u05D5\u05EA \u05D8\u05D5\u05D1 \u05D9\u05D5\u05EA\u05E8 \u05E2\u05DC \u05D4\u05E6\u05E8\u05DB\u05D9\u05DD \u05E9\u05DC\u05DA?';wN.yn_yes_text='\u05DB\u05DF';wN.yn_no_text='\u05DC\u05D0';wN.yn_nps_text0='Not at All Likely';wN.yn_nps_text10='Extremely Likely';wN.yn_placeholder_text='\u05D4\u05E2\u05E8\u05D5\u05EA';wN.yn_disclaimer_body_text='\u05D0\u05E0\u05D5\u05DE\u05E2\u05E8\u05D9\u05DB\u05D9\u05DD \u05DB\u05DC \u05DE\u05E9\u05D5\u05D1, \u05D0\u05DA \u05D0\u05D9\u05E0\u05E0\u05D5 \u05D9\u05DB\u05D5\u05DC\u05D9\u05DD \u05DC\u05D4\u05E9\u05D9\u05D1 \u05D0\u05D5 \u05DC\u05D4\u05E2\u05E0\u05D9\u05E7 \u05EA\u05DE\u05D9\u05DB\u05D4 \u05D1\u05DE\u05D5\u05E6\u05E8. \u05D0\u05DD \u05D0\u05EA\u05D4 \u05D6\u05E7\u05D5\u05E7 \u05DC\u05EA\u05D2\u05D5\u05D1\u05D4, ';wN.yn_disclaimer_link_text='\u05E6\u05D5\u05E8 \u05E7\u05E9\u05E8 \u05E2\u05DD \u05D4\u05EA\u05DE\u05D9\u05DB\u05D4';wN.yn_submit_text='\u05E9\u05DC\u05D7';wN.yn_alert_text='\u05E0\u05D0 \u05DC\u05E2\u05E0\u05D5\u05EA \u05E2\u05DC \u05D4\u05E9\u05D0\u05DC\u05D5\u05EA';wN.yn_success_text='\u05EA\u05D5\u05D3\u05D4 \u05E2\u05DC \u05D4\u05E9\u05EA\u05EA\u05E4\u05D5\u05EA\u05DA!';wN.yn_lang='he-IL';wN.yn_contact_url='https://www.intel.co.il/content/www/us/en/support/contact-intel.com';};if(onsKey==22){wN.yn_feedback_text='Give Feedback';wN.yn_question_text='Did you find this information useful?';wN.yn_question_text2='How likely is it that you would recommend Intel to a friend or colleague?';wN.yn_question_text3='Please tell us how we can improve the experience to better meet your needs?';wN.yn_yes_text='Yes';wN.yn_no_text='No';wN.yn_nps_text0='Not at All Likely';wN.yn_nps_text10='Extremely Likely';wN.yn_placeholder_text='Comments:';wN.yn_disclaimer_body_text='We appreciate all feedback, but cannot reply or give product support. If you require a response, ';wN.yn_disclaimer_link_text='contact support.';wN.yn_submit_text='Send';wN.yn_alert_text='Please provide an answer to the question(s).';wN.yn_success_text='Thank you for your participation!';wN.yn_lang='en-AU';wN.yn_contact_url='https://www.intel.com.au/content/www/au/en/support/contact-intel.com';};if(onsKey==23){wN.yn_feedback_text='Give Feedback';wN.yn_question_text='Did you find this information useful?';wN.yn_question_text2='How likely is it that you would recommend Intel to a friend or colleague?';wN.yn_question_text3='Please tell us how we can improve the experience to better meet your needs?';wN.yn_yes_text='Yes';wN.yn_no_text='No';wN.yn_nps_text0='Not at All Likely';wN.yn_nps_text10='Extremely Likely';wN.yn_placeholder_text='Comments:';wN.yn_disclaimer_body_text='We appreciate all feedback, but cannot reply or give product support. If you require a response, ';wN.yn_disclaimer_link_text='contact support.';wN.yn_submit_text='Send';wN.yn_alert_text='Please provide an answer to the question(s).';wN.yn_success_text='Thank you for your participation!';wN.yn_lang='en-IN';wN.yn_contact_url='https://www.intel.in/content/www/in/en/support/contact-intel.com';};function ONS_embedMyIntelStyle(){var
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sObj=dD.createElement('STYLE');sObj.innerHTML='.OnR-input
input{position:absolute;opacity:0;cursor:pointer;height:0;width:0;}.OnR-
checkmark{top:0;left:0;height:1.1em;width:1.1em;background-color:#fff;border-
radius:50%;border:solid 2px #1f6af2;margin-top:0.4em;}.OnR-input
input:checked ~ .OnR-checkmark{background-color:#2196F3;box-shadow: 0 0
4pt 2px #8eb4f8;}.OnR-
checkmark:after{content:"";position:relative;display:none;}.OnR-input .OnR-
checkmark:after{top:9px;left:9px;width:8px;height:8px;border-
radius:50%;background:white;}#yesno-widget input:hover ~ label{background-
color: #0083d7 !important;}#yesno-widget input:checked ~ label{background-
color: #0083d7 !important;}#yesno-widget ::placeholder { color: #9a9a9a;
opacity: 1; }#yesno-widget :-ms-input-placeholder{ color: #9a9a9a; }#yesno-
widget ::-ms-input-placeholder{ color: #9a9a9a;}@media only screen and (max-
width:420px){#yesno-widget h2{font-weight: bold!important;}#yesno-
error{width: 92%!important;margin: 0 auto!important;margin-bottom:10px!
important;}#btn-close{font-weight: normal!important;}#btn-send{font-weight:
bold!important;width:95%!important;height: 40px !important;}#rating-1-
block,#rating-2-block,#rating-3-block,#rating-4-block,#rating-5-
block{width:20%!important;margin-right:0!important;height:80px!
important;}#rating-1-block label,#rating-2-block label,#rating-3-block
label,#rating-4-block label,#rating-5-block label{width:90%!important;margin-
right:0!important;height:80px!important;}#yesno-widget{background: #fff!
important;right:0!important;left:0!important;padding-right:0!important;padding-
left:0!important;width:100%!important;top:0!important;bottom:0!
important;}#yesno-comment{max-width:98%!important;width:98%!
important;min-height:100px!important;max-height:100px!important;}#yesno-1-
block,yesno-2-block{width:47%!important;}#yesno-1-block label,#yesno-2-block
label{height: 40px!important;padding-top: 4px!important;}#yesno-1-block label
span,#yesno-2-block label span{font-weight: bold!important;}#rating-1-block
label p,#rating-2-block label p,#rating-3-block label p,#rating-4-block label
p,#rating-5-block label p{white-space: normal; word-break: break-all;font-
weight: bold!important;}}@media only screen and (max-width:320px){#rating-
1-block label p,#rating-2-block label p,#rating-3-block label p,#rating-4-block
label p,#rating-5-block label p{font-weight: normal!important;}#rating-1-block
label p.yn-bold,#rating-2-block label p.yn-bold,#rating-3-block label p.yn-
bold,#rating-4-block label p.yn-bold,#rating-5-block label p.yn-bold{font-weight:
bold!important;}}.landscape #yesno-widget{display: block;position !important:
absolute;bottom: AUTO !important;right: 0 !important;left: 0 !
important;background-color: #fff !important;width: 100% !important;height:
100VH !important;padding-right: 0 !important;padding-left: 0 !
important;padding-bottom: 0 !important;top: 0 !important; OVERFLOW: AUTO !
important;}.landscape #yesno-comment{width: 100% !
important;}.landscape .btnformcontainer {text-align: center !
important;}.landscape #yesno-1-block,.landscape #yesno-2-block,.landscape
#yesno-3-block{height: 40px !important;}.landscape #yesno-1-block
label,.landscape #yesno-2-block label,.landscape #yesno-3-block label{height:
38px !important;}.landscape #yesno-1-block span,.landscape #yesno-2-block
span,.landscape #yesno-3-block span{line-height: 38px !
important;}.landscape .selectdropdown {padding: 8px !important;}.landscape
#btn-send{width: 200px !important ;height: 40px !important;}.landscape
div#yesno-error {margin-top: 7px !important;width: 96% !important;margin: 0
auto;}.landscape div#yesno-widget-content{padding-bottom: 60px !
important;}.landscape #btn-widget{bottom: -74px;right: 48px !important;width:
40px !important;height: 188px;transform: rotate(-90deg) !important;-webkit-

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transform: rotate(-90deg) !important;-webkit-transform: rotate(-90deg) !
important;-moz-transform: rotate(-90deg) !important;-o-transform: rotate(-
90deg) !important;-ms-transform: rotate(-90deg) !important;}.landscape #btn-
widget img{padding-right: 7px !important;transform: rotate(-90deg) !important;-
webkit-transform: rotate(-90deg) !important;-webkit-transform: rotate(-90deg) !
important;-moz-transform: rotate(-90deg) !important;-o-transform: rotate(-
90deg) !important;-ms-transform: rotate(-90deg) !important;}#btn-widget
{right: 48px !important;width: 40px !important;height: 188px;transform: rotate(-
90deg) !important;-webkit-transform: rotate(-90deg) !important;-webkit-
transform: rotate(-90deg) !important;-moz-transform: rotate(-90deg) !important;-
o-transform: rotate(-90deg) !important;-ms-transform: rotate(-90deg) !
important;bottom: -74px;}#btn-widget img {width: 44px !important;padding-
right: 7px !important;transform: rotate(-90deg) !important;-webkit-transform:
rotate(-90deg) !important;-webkit-transform: rotate(-90deg) !important;-moz-
transform: rotate(-90deg) !important;-o-transform: rotate(-90deg) !important;-
ms-transform: rotate(-90deg) !important;}*::-ms-backdrop, #btn-widget { right:
60px !important;}@media only screen and (max-width:420px){#yesno-
widget{overflow-x: auto !important;}.selectdropdown {font-weight:
normal;height: 36px;}#yesno-1-block, #yesno-2-block {width: 47%!important}
#yesno-3-block {width: 96%!important}.btnformcontainer {text-align: center !
important;margin-bottom: 25px !important;}}@media only screen and (max-
width:420px){#btn-widget{bottom: -74px;right: 48px !important;width: 40px !
important;height: 188px ;transform: rotate(-90deg) !important;-webkit-
transform: rotate(-90deg) !important;-webkit-transform: rotate(-90deg) !
important;-moz-transform: rotate(-90deg) !important;-o-transform: rotate(-
90deg) !important;-ms-transform: rotate(-90deg) !important;}#btn-widget
img{padding-right: 7px !important;transform: rotate(-90deg) !important;-webkit-
transform: rotate(-90deg) !important;-webkit-transform: rotate(-90deg) !
important;-moz-transform: rotate(-90deg) !important;-o-transform: rotate(-
90deg) !important;-ms-transform: rotate(-90deg) !important;}*::-ms-backdrop,
#btn-widget { right: 60px !important;}}';dD.body.appendChild(sObj);}function
ONS_detectViewPort(){var bodyObj = document.body;if(window.innerWidth <
768){if(window.innerHeight < window.innerWidth)
{bodyObj.classList.add('landscape');}else{bodyObj.classList.remove('landscape')
}}else{bodyObj.classList.remove('landscape')}}window.addEventListener("resiz
e", ONS_detectViewPort);function ONS_showMyIntelWidget()
{if(dD.getElementsByClassName('idz-survey').length==0&&!
dD.getElementById('feedback-1')&&!
dD.getElementById('feedbackToolContainer'))
{ONS_embedMyIntelStyle();if(ONS_gCookie(cn+'STG')== '16')ONS_sCookie(cn+'S
TG','32',cdv,ch);var ynObtn=dD.createElement('DIV');ynObtn.onclick=function()
{ONS_detectViewPort();dD.getElementById('yesno-
widget').style.display='block';this.style.display='none';};ynObtn.id='btn-
widget';ynObtn.className='geo-0';var shtml="";shtml='<div class="inBtn"
style="width:50px;height:185px;padding-top:9px;padding-left:9px;padding-
right:7px;margin:0;color:'+yn_header_text_color_css+';background-
color:'+yn_header_background_color_css+';font-
family:'+yn_text_family_css+';font-size:16px;line-height:1;font-
weight:200;">';shtml+='';shtml+='<span style="display:block;position:absolute;top:100px;left:-50px!
important;right:auto!important;height:auto;width:auto;min-width:150px;text-
align:center;margin:0;padding:0;color:'+yn_header_text_color_css+';font-
family:'+yn_text_family_css+';font-size:16px;line-height:1;font-

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weight:normal;transform:rotate(90deg);-webkit-transform:rotate(90deg);-webkit-
transform:rotate(90deg);-moz-transform:rotate(90deg);-o-transform:
rotate(90deg);-ms-transform:rotate(90deg);">'+yn_feedback_text+'</span></
div>';ynObtn.innerHTML=shtml;var
ynObj=dD.createElement('DIV');ynObj.id='yesno-
widget';ynObj.className='widget-geo-0';shtml='<div
style="height:3.3em;padding-top:0;padding-right:.75em;padding-
bottom:0;padding-
left:.75em;margin:0;color:'+yn_header_text_color_css+';background-
color:'+yn_header_background_color_css+';font-
family:'+yn_text_family_css+';font-size:14px;line-height:1;font-
weight:200;">';shtml+='';shtml+='<span
style="cursor:pointer;display:inline-block;vertical-align:middle;margin-
top:.75em;margin-bottom:0;padding:0;color:'+yn_header_text_color_css+';font-
family:'+yn_text_family_css+';font-size:16px;line-height:1;font-weight:normal;"
onclick="ONS_minMyIntelWidget();">'+yn_feedback_text+'</span>';shtml+='<
button id="btn-close" type="button" style="display:inline-block;vertical-
align:middle;float:right;margin-top:.25em;margin-
bottom:0;padding:.3125em;cursor:pointer;background-color:transparent;border-
color:transparent;color:'+yn_header_text_color_css+';font-
family:'+yn_text_family_css+';font-size:21px;line-height:1;font-weight:200;"
onclick="ONS_closeMyIntelWidget();">X</button></div>';shtml+='<div
id="yesno-widget-content" style="padding:.73em;background-
color:'+yn_body_background_color_css+';border-left:solid 1px
#D7D7D7;color:'+yn_body_text_color_css+';">';shtml+='<div id="yesno-
widget-Q1-border"><p id="yesno-widget-Q1" style="padding:0;margin-
top:0;margin-bottom:0;text-align:left;color:'+yn_body_text_color_css+';font-
family:'+yn_text_family_css+';font-size:14px;line-height:1.25;font-
weight:bold;">'+yn_question_text+'</p>';shtml+='<div style="margin-
top:.5em;padding-left:0;margin-bottom:.5em;text-align:left;">';shtml+='<div
style="display:flex;justify-content:center;margin-top:1em;margin-
bottom:1.3em;">';shtml+='<label class="OnR-input" for="yesno-1"
style="display:flex;align-items:center;flex-flow:column;width:18%;font-
weight:normal;font-size:14px;cursor:pointer;"
onclick="ONS_cleanErrorMsg();">'+yn_yes_text+'<br /><input style="margin: 0
0.5em;" type="radio" id="yesno-1" name="yesno-yes-no" value="1" /><span
class="OnR-checkmark"></span></label>';shtml+='<label class="OnR-input"
for="yesno-2" style="display:flex;align-items:center;flex-
flow:column;width:18%;font-weight:normal;font-size:14px;cursor:pointer;"
onclick="ONS_cleanErrorMsg();">'+yn_no_text+'<br /><input style="margin: 0
0.3em;" type="radio" id="yesno-2" name="yesno-yes-no" value="2" /><span
class="OnR-checkmark"></span></label>';shtml+='</div></div></div>';shtml
l+='<p style="padding:0;margin-top:0;margin-bottom:0;text-
align:left;color:'+yn_body_text_color_css+';font-
family:'+yn_text_family_css+';font-size:14px;line-height:1.25;font-
weight:bold;">'+yn_question_text3+'</p>';shtml+='<div id="yesno-comment-
block" style="margin-bottom:1em;"><textarea id="yesno-comment"
name="yesno-comment" rows="3" maxLength="'+yn_onML[onsKey]+'"'
placeholder="'+yn_placeholder_text+'"'
onkeyup="ONS_countMyIntelWidget(this);" autocomplete="off"
style="resize:none;display:block;width:360px;min-width:260px!

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important;width:360px;height:80px;min-height:80px;max-
height:80px;overflow:hidden;margin:0;padding:.5em;background-
color:#F3F3F3;border:1px solid
#F3F3F3;outline:none;color:'+yn_body_text_color_css+';font-
family:'+yn_text_family_css+';font-size:14px;line-height:1.25;font-
weight:normal;margin-top: 12px;"></textarea><p style="padding:0;margin-
top:0;margin-bottom:1em;color:#9c9c9c;font-family:'+yn_text_family_css+';font-
size:10px;line-height:1.2;font-weight:normal;padding-top:5px">(<span
id="yesno-comment-count">0</span>/' +yn_onML[onsKey]+'</p></div><div
id="yesno-error" style="margin-top:-8px;color:#721c24;background-
color:#f8d7da;border: 1px solid #f5c6cb;font-size:12px;border-radius:
3px;display: none;padding: 5px;margin-bottom: 8px;font-
family:'+yn_text_family_css+'">' +yn_alert_text+'</div>';shtml+='<div
style="text-align:center;"><button type="button" id="btn-send"
onclick="ONS_submitMyIntelWidget();" style="display:inline-
block;width:125px;height:31px;margin-top:0;margin-
bottom:0;padding:0;border:none;border-radius:3px;cursor:pointer;background-
color:#0071C5;color:'+yn_header_text_color_css+';font-
family:'+yn_text_family_css+';font-size:14px;line-height:1;font-
weight:normal;text-align:center;text-
transform:capitalize;">' +yn_submit_text+'</button></div>';shtml+='<p
style="padding:0;margin-top:1em;margin-bottom:0;color:#BBBBBB;font-
family:'+yn_text_family_css+';font-size:12px;line-height:1.25;font-
weight:normal;">' +yn_disclaimer_body_text+'<a href="'+yn_contact_url+'"'
style="text-decoration:none;color:'+yn_body_link_color_css+';font-
family:'+yn_text_family_css+';font-size:12px;line-height:1.25;font-
weight:normal;">' +yn_disclaimer_link_text+'</a></p></
div>';ynObj.innerHTML=shtml;if(document.getElementsByClassName('avaamo_
chat__widget').length==0){ynObj.style.cssText='display:none;position:fixed;z-
index:9998;bottom:15px;left:15px;background-
color:'+yn_shadow_color_css+';width:400px;height:auto;margin:0;padding-
right:.5em;padding-
bottom:.5em;';ynObtn.style.cssText='display:block;position:fixed;z-
index:9998;bottom:-60px !important;left:85px !
important;width:50px;height:185px;padding-right:.5em;padding-
bottom:.5em;background-
color:'+yn_shadow_color_css+';cursor:pointer;';dD.body.appendChild(ynObj);dD.
body.appendChild(ynObtn);}else{ynObj.style.cssText='display:none;position:fixe
d;z-index:9998;bottom:15px;left:15px;background-
color:'+yn_shadow_color_css+';width:400px;height:auto;margin:0;padding-
right:.5em;padding-bottom:.5em;';ynObtn.style.cssText='display:inline-
block;position:absolute;z-index:9998;background-color:' + yn_shadow_color_css
+ ';cursor:pointer;top:-7.15em;left:6em !
important;';dD.body.appendChild(ynObj);dD.getElementsByTagName('footer')
[0].appendChild(ynObtn);}}function ONS_submitMyIntelWidget(){var
radiosYN=dD.getElementsByName('yesno-yes-no');var YNValid=false;var
ratingYN=dD.getElementsByName('rating');var ratingValid=false;var i= 0;while(!
YNValid&&i<radiosYN.length){if (radiosYN[i].checked){var
yesnoAnswer=radiosYN[i].value;YNValid=true;}}i++;}var
yesnoComment=dD.getElementById('yesno-
comment').value;dD.getElementById('yesno-widget-
Q1').style.color='#555555';dD.getElementById('yesno-widget-Q1-
border').style.border='0px';if(!YNValid){dD.getElementById('yesno-
error').style.display='block';if(!YNValid){dD.getElementById('yesno-widget-

```

```

Q1').style.color='red';dD.getElementById('yesno-widget-Q1-
border').style.border='solid 3px red';}}else{var sid=onsUSID||
ONS_gCookie(cn+'SID');var uid=onsUUID||ONS_gCookie(cn+'UID');var
yn_qs_answers='?
sid='+sid+'&uid='+uid+'&onYesNo='+yesnoAnswer+'&onComment='+encodeURIComponent
RiComponent(yesnoComment)+'&onLang='+encodeURIComponent(yn_lang)
+'&onCurl='+encodeURIComponent(dD.location.href)
+'&ss='+wN.screen.width+'x'+wN.screen.height;var
yn_send_url=yn_api_url+yn_qs_answers;ONS_sendXDR(yn_send_url);dD.getElem
entById('yesno-widget-content').innerHTML='<div style="padding:10px;text-
align:center;height:300px;margin-top:40px;"></div>';setTimeout(function()
{ONS_successSend();},1000);}}function ONS_successSend()
{dD.getElementById('yesno-widget-content').innerHTML='<div
style="padding:10px;height:300px;font-family:'+yn_text_family_css+';text-align:
center;"><div style="color:#155724;background-color:#d4edda;border-
color:#c3e6cb;padding:10px;font-size:12px;">'+yn_success_text+'</div></
div>';setTimeout(function()
{ONS_closeMyIntelWidget();},5000);ONS_collectDataLake();}function
ONS_sendXDR(urlQ){var ynXdr=null;var ynXhr=null;if(typeof XMLHttpRequest!
='undefined'){try{ynXdr=new XMLHttpRequest();}catch(e){ynXdr=null;}}else
if(wN.XMLHttpRequest){try{ynXhr=new XMLHttpRequest();if(!'withCredentials'
in ynXhr)ynXhr=null;}catch(e){ynXhr=null;}}if(ynXhr)
{ynXhr.onreadystatechange=function()
{};ynXhr.open('GET',urlQ,true);ynXhr.send();}else if(ynXdr)
{ynXdr.open('GET',urlQ);ynXdr.onprogress=function()
{};ynXdr.ontimeout=function(){};ynXdr.onerror=function()
{};ynXdr.onload=function(){};setTimeout(function()
{ynXdr.send();},0);}}function ONS_minMyIntelWidget()
{dD.getElementById('yesno-
widget').style.display='none';dD.getElementById('btn-
widget').style.display='block';}function ONS_closeMyIntelWidget()
{dD.getElementById('yesno-widget').style.display='none';}function
ONS_cleanErrorMsg(){dD.getElementById('yesno-
error').style.display='none';}function ONS_countMyIntelWidget(o)
{if(o.value.length>yn_onML[onsKey])o.value=o.value.substring(yn_onML[onsKey
]);var remaining=o.value.length;dD.getElementById('yesno-comment-
count').innerHTML=remaining;onsUSID='8056886452209M1659397249170';on
sUUID=ONS_gCookie(cn+'UID');if(onsUUID=='')
{ONS_sCookie(cn+'UID','8056886452209M1659397249170',365,ch);onsUUID='8
056886452209M1659397249170';}ONS_sCookie(cn+'SID',onsUSID,cdv,ch);if(ON
S_gCookie(cn+'STG')==')
{ONS_sCookie(cn+'STG','30',onsCookieExp,ch);}if((ONS_gCookie('inteligresearch
')==1||ONS_gCookie('inteligresearch2')==1)){ONS_launchYNInvite();}function
ONS_CoreSite()
{}setTimeout('ONS_initCore(true)',1000);setTimeout('ONS_showMyIntelWidget()',
5000);</script></body></html>

```

```

<html class="rwd geo-override vis no-rtl headerfooter-menu3 js flexbox
flexboxlegacy canvas canvastext webgl touch geolocation postmessage no-
websql database indexeddb hashchange history draganddrop websockets rgba
hsla multiplebgs backgroundsize borderimage borderradius boxshadow
textshadow opacity cssanimations csscolumns cssgradients cssreflections
csstransforms csstransforms3d csstransitions fontface generatedcontent video

```



audio localstorage sessionstorage webworkers applicationcache svg inlinesvg  
smil svgclippaths overthrow-enabled mobile iphone smallscreen ios ios15\_6  
ios15 safari safari15 webkit no-desktop portrait no-ipad no-ipod appleios"  
lang="en" style="opacity: 1;"><head class="at-element-marker">  
    <meta charset="UTF-8">

<title>3.6. Error Detection</title>

<link rel="preconnect" href="//dpm.demdex.net/" crossorigin="">  
<link rel="dns-prefetch" href="//dpm.demdex.net/">  
<link rel="preconnect" href="//starget.intel.com/">  
<link rel="dns-prefetch" href="//starget.intel.com/">  
<link rel="preconnect" href="//elqtrk.intel.com/">  
<link rel="dns-prefetch" href="//elqtrk.intel.com/">  
<link rel="dns-prefetch" href="//onsite2.researchintel.com/">  
<link rel="preconnect" href="//tags.tiqcdn.com/" crossorigin="">  
<link rel="dns-prefetch" href="//tags.tiqcdn.com/">  
<link rel="preconnect" href="//www91.intel.com/">  
<link rel="dns-prefetch" href="//www91.intel.com/">

    <link rel="preload" href="/content/dam/www/global/wap/performance-  
config.js" as="script" type="text/javascript">  
    <script src="//tms-global.intel.com/profile-cq.asmo-na/prod/utag.js"  
type="text/javascript" async=""></script><script type="text/javascript"  
src="/content/dam/www/global/wap/performance-config.js"></script>  
    <link rel="preload"  
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/global/  
targetDataCookie.min.js" as="script" type="text/javascript">  
    <script src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/global/  
targetDataCookie.min.js"></script>

<link rel="preload"  
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/  
nav.min.css" as="style" type="text/css">

<link rel="preload"  
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/  
resources/intelone-display-regular.woff2" as="font" type="font/woff2"  
crossorigin="true">

```
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intelone-display-medium.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intel-clear-latin.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intel-clear-latin-bold.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intel-clear-latin-italic.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intelone-display-bold.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/us/en/Fonts/
resources/intelone-display-light.woff2" as="font" type="font/woff2"
crossorigin="true">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/site-
global-icons/resources/font/site-global-icons.woff2?16701488" as="font"
type="font/woff2" crossorigin="true">
```

```
<meta http-equiv="X-UA-Compatible" content="IE=Edge">
<!--[if lte IE 9]>
<meta http-equiv="X-UA-Compatible" content="IE=9"/>
<![endif]-->
```

```
<meta name="twitter:card" content="summary">
```

```
<meta name="keywords" content="">
```

```
<meta name="item_id"
content="/content/www/us/en/docs/programmable/683865/current/error-
detection">

<meta name="description" content="">

<meta name="language" content="en">

<meta name="book_id" content="683865">

<meta name="twitter:image"
content="https://www.intel.com/content/dam/logos/logo-energyblue-1x1.png">

<meta name="partnum" content="UG-M10CONFIG">

<meta name="parent_id" content="666495">

<meta name="revision_date" content="5/26/2022">

<meta name="location" content="us">

<meta name="robots" content="follow,index,noarchive">

<meta name="X-Server" content="INTE-T1">
```

```
<meta property="og:image"
content="https://www.intel.com/etc.clientlibs/settings/wcm/designs/intel/us/en/
images/resources/printlogo.png">
```

```
<meta property="og:type" content="company">

<meta property="og:site_name" content="Intel">

<meta property="og:title" content="3.6. Error Detection">

<meta property="fb:admins" content="267985180046218">
```

```
<meta property="og:url"
content="https://www.intel.com/content/www/us/en/docs/programmable/
683865/current/error-detection.html">
```

```
<meta property="og:description" content="">
```

```
<meta http-equiv="content-type" content="text/html; charset=utf-8">
```

```
<meta name="emtcontenttype" content="Content Type|Design and
Development Reference|Development Guides|Development User Guides;Content
Type|Design and Development Reference|Development Guides|Development
User Guides;">
```

```
<meta name="contentpath"
content="/content/www/us/en/docs/programmable/683865/current/error-
detection">
```

<meta name="authoreddate" content="">

<meta name="localecode" content="en\_US">

<meta name="reimaginetoplevelcategory" content="Audience|Business|Technical Decision Maker (TDM)|Developer|FPGA Engineer;">

<meta name="mime" content="text/html">

<meta name="format" content="udeDocumentationDetail">

<meta name="excludefromviews" content="false">

<meta name="taxonomy" content="etm-7F4D4D11-85BF-4ACF-A305-3D077F78760B;etm-7a535fe38d6c4b1aa9749d79c0a2c89d;etm-a065764d12404422a4010b8396828f63;etm-83741EA4-0466-4A89-9395-C861EDA3D38B;etm-83741EA4-0466-4A89-9395-C861EDA3D38B;etm-74fc3401b6764c42ad8255f4feb9bd9e;etm-562F15FC-A2B4-4AC9-AE56-12E106ADD48F;etm-d370f01035d54b9a8dc4f13a6e3665e4;">

<meta name="title" content="3.6. Error Detection">

<meta name="menu" content="">

<meta name="emtsubject" content="Subject|Design|FPGA Design|Remote System Upgrades;">

<meta name="reimaginefilters" content="Primary Content Tagging|Intel® FPGAs|Intel® Programmable Devices|Intel® MAX®|Intel® MAX® 10 FPGAs;Subject|Design|FPGA Design|Remote System Upgrades;Curated|DO NOT USE IN EXTERNAL FILTERS|Recommended;Primary Content Tagging|Intel® FPGAs|Intel® Programmable Devices;Primary Content Tagging|Intel® FPGAs|Intel® Programmable Devices;Content Type|Design and Development Reference|Development Guides|Development User Guides;Primary Content Tagging|Intel® FPGAs|Intel® FPGA Intellectual Property|Basic Functions;">

<meta name="generic1" content="true">

<meta name="emtaudience" content="Audience|Business|Technical Decision Maker (TDM)|Developer|FPGA Engineer;">

<meta name="intelkeywords" content="">

<meta name="lastModifieddate" content="">

<meta name="thumbnailurl" content="">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

```
<link rel="icon" type="image/png" sizes="32x32"
href="/etc.clientlibs/settings/wcm/designs/intel/default/resources/favicon-
32x32.png">
<link rel="icon" type="image/png" sizes="16x16"
href="/etc.clientlibs/settings/wcm/designs/intel/default/resources/favicon-
16x16.png">
<link rel="shortcut icon"
href="/etc.clientlibs/settings/wcm/designs/intel/default/resources/favicon.ico">
```

```
<link rel="canonical"
href="https://www.intel.com/content/www/us/en/docs/programmable/683865/
current/error-detection.html">
<link rel="alternate" hreflang="ja-jp"
href="https://www.intel.co.jp/content/www/jp/ja/docs/programmable/683865/
current/error-detection.html">
    <link rel="alternate" hreflang="zh-cn"
href="https://www.intel.cn/content/www/cn/zh/docs/programmable/683865/
current/error-detection.html">
    <link rel="alternate" hreflang="en-us"
href="https://www.intel.com/content/www/us/en/docs/programmable/683865/
current/error-detection.html">
    <link rel="alternate" hreflang="x-default"
href="https://www.intel.com/content/www/us/en/docs/programmable/683865/
current/error-detection.html">
```

```
<style>
@-ms-viewport{width:device-width;}

</style>
```

```
    <link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/intc-
core.min.css" as="style"><link rel="stylesheet"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/intc-
core.min.css" type="text/css"><script
src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/intc-
core.min.js" defer=""></script>
```

```

<script
src="https://cdnjs.cloudflare.com/ajax/libs/clipboard.js/2.0.0/clipboard.min.js"></
script><style type="text/css">.MathJax_Hover_Frame {border-radius: .25em; -
webkit-border-radius: .25em; -moz-border-radius: .25em; -khtml-border-
radius: .25em; box-shadow: 0px 0px 15px #83A; -webkit-box-shadow: 0px 0px
15px #83A; -moz-box-shadow: 0px 0px 15px #83A; -khtml-box-shadow: 0px 0px
15px #83A; border: 1px solid #A6D ! important; display: inline-block; position:
absolute}
.MathJax_Menu_Button .MathJax_Hover_Arrow {position: absolute; cursor:
pointer; display: inline-block; border: 2px solid #AAA; border-radius: 4px; -
webkit-border-radius: 4px; -moz-border-radius: 4px; -khtml-border-radius: 4px;
font-family: 'Courier New',Courier; font-size: 9px; color: #F0F0F0}
.MathJax_Menu_Button .MathJax_Hover_Arrow span {display: block; background-
color: #AAA; border: 1px solid; border-radius: 3px; line-height: 0; padding: 4px}
.MathJax_Hover_Arrow:hover {color: white!important; border: 2px solid #CCC!
important}
.MathJax_Hover_Arrow:hover span {background-color: #CCC!important}
</style><style type="text/css">#MathJax_About {position: fixed; left: 50%;
width: auto; text-align: center; border: 3px outset; padding: 1em 2em;
background-color: #DDDDDD; color: black; cursor: default; font-family: message-
box; font-size: 120%; font-style: normal; text-indent: 0; text-transform: none;
line-height: normal; letter-spacing: normal; word-spacing: normal; word-wrap:
normal; white-space: nowrap; float: none; z-index: 201; border-radius: 15px; -
webkit-border-radius: 15px; -moz-border-radius: 15px; -khtml-border-radius:
15px; box-shadow: 0px 10px 20px #808080; -webkit-box-shadow: 0px 10px
20px #808080; -moz-box-shadow: 0px 10px 20px #808080; -khtml-box-shadow:
0px 10px 20px #808080; filter:
progid:DXImageTransform.Microsoft.dropshadow(OffX=2, OffY=2, Color='gray',
Positive='true')}
#MathJax_About.MathJax_MousePost {outline: none}
.MathJax_Menu {position: absolute; background-color: white; color: black; width:
auto; padding: 5px 0px; border: 1px solid #CCCCCC; margin: 0; cursor: default;
font: menu; text-align: left; text-indent: 0; text-transform: none; line-height:
normal; letter-spacing: normal; word-spacing: normal; word-wrap: normal; white-
space: nowrap; float: none; z-index: 201; border-radius: 5px; -webkit-border-
radius: 5px; -moz-border-radius: 5px; -khtml-border-radius: 5px; box-shadow:
0px 10px 20px #808080; -webkit-box-shadow: 0px 10px 20px #808080; -moz-
box-shadow: 0px 10px 20px #808080; -khtml-box-shadow: 0px 10px 20px
#808080; filter: progid:DXImageTransform.Microsoft.dropshadow(OffX=2,
OffY=2, Color='gray', Positive='true')}
.MathJax_MenuItem {padding: 1px 2em; background: transparent}
.MathJax_MenuArrow {position: absolute; right: .5em; padding-top: .25em; color:
#666666; font-size: .75em}
.MathJax_MenuActive .MathJax_MenuArrow {color: white}
.MathJax_MenuArrow.RTL {left: .5em; right: auto}
.MathJax_MenuCheck {position: absolute; left: .7em}
.MathJax_MenuCheck.RTL {right: .7em; left: auto}
.MathJax_MenuRadioCheck {position: absolute; left: .7em}
.MathJax_MenuRadioCheck.RTL {right: .7em; left: auto}
.MathJax_MenuLabel {padding: 1px 2em 3px 1.33em; font-style: italic}
.MathJax_MenuRule {border-top: 1px solid #DDDDDD; margin: 4px 3px}

```

```

.MathJax_MenuDisabled {color: GrayText}
.MathJax_MenuActive {background-color: #606872; color: white}
.MathJax_MenuDisabled:focus, .MathJax_MenuLabel:focus {background-color:
#E8E8E8}
.MathJax_ContextMenu:focus {outline: none}
.MathJax_ContextMenu .MathJax_MenuItem:focus {outline: none}
#MathJax_AboutClose {top: .2em; right: .2em}
.MathJax_Menu .MathJax_MenuClose {top: -10px; left: -10px}
.MathJax_MenuClose {position: absolute; cursor: pointer; display: inline-block;
border: 2px solid #AAA; border-radius: 18px; -webkit-border-radius: 18px; -moz-
border-radius: 18px; -khtml-border-radius: 18px; font-family: 'Courier
New', Courier; font-size: 24px; color: #F0F0F0}
.MathJax_MenuClose span {display: block; background-color: #AAA; border:
1.5px solid; border-radius: 18px; -webkit-border-radius: 18px; -moz-border-
radius: 18px; -khtml-border-radius: 18px; line-height: 0; padding: 8px 0 6px}
.MathJax_MenuClose:hover {color: white!important; border: 2px solid #CCC!
important}
.MathJax_MenuClose:hover span {background-color: #CCC!important}
.MathJax_MenuClose:hover:focus {outline: none}
</style><style type="text/css">.MathJax_Preview .MJXf-math {color: inherit!
important}
</style><style type="text/css">.MJX_Assistive_MathML {position: absolute!
important; top: 0; left: 0; clip: rect(1px, 1px, 1px, 1px); padding: 1px 0 0 0!
important; border: 0!important; height: 1px!important; width: 1px!important;
overflow: hidden!important; display: block!important; -webkit-touch-callout:
none; -webkit-user-select: none; -khtml-user-select: none; -moz-user-select:
none; -ms-user-select: none; user-select: none}
.MJX_Assistive_MathML.MJX_Assistive_MathML_Block {width: 100%!important}
</style><style type="text/css">#MathJax_Zoom {position: absolute;
background-color: #F0F0F0; overflow: auto; display: block; z-index: 301;
padding: .5em; border: 1px solid black; margin: 0; font-weight: normal; font-
style: normal; text-align: left; text-indent: 0; text-transform: none; line-height:
normal; letter-spacing: normal; word-spacing: normal; word-wrap: normal; white-
space: nowrap; float: none; -webkit-box-sizing: content-box; -moz-box-sizing:
content-box; box-sizing: content-box; box-shadow: 5px 5px 15px #AAAAAA; -
webkit-box-shadow: 5px 5px 15px #AAAAAA; -moz-box-shadow: 5px 5px 15px
#AAAAAA; -khtml-box-shadow: 5px 5px 15px #AAAAAA; filter:
progid:DXImageTransform.Microsoft.dropshadow(OffX=2, OffY=2, Color='gray',
Positive='true')}
#MathJax_ZoomOverlay {position: absolute; left: 0; top: 0; z-index: 300; display:
inline-block; width: 100%; height: 100%; border: 0; padding: 0; margin: 0;
background-color: white; opacity: 0; filter: alpha(opacity=0)}
#MathJax_ZoomFrame {position: relative; display: inline-block; height: 0; width:
0}
#MathJax_ZoomEventTrap {position: absolute; left: 0; top: 0; z-index: 302;
display: inline-block; border: 0; padding: 0; margin: 0; background-color: white;
opacity: 0; filter: alpha(opacity=0)}
</style><style type="text/css">.MathJax_Preview {color: #888}
#MathJax_Message {position: fixed; left: 1px; bottom: 2px; background-color:
#E6E6E6; border: 1px solid #959595; margin: 0px; padding: 2px 8px; z-index:
102; color: black; font-size: 80%; width: auto; white-space: nowrap}
#MathJax_MSIE_Frame {position: absolute; top: 0; left: 0; width: 0px; z-index:
101; border: 0px; margin: 0px; padding: 0px}
.MathJax_Error {color: #CC0000; font-style: italic}

```

```

</style><script>var isTargetEnabled =false;</script><script>
  var cq_tms = {
    wa_emtcontenttype:
"emtcontenttype:designanddevelopmentreference/developerguide/developeruse
rguide",
    wa_primarycontenttagging:
"primarycontenttagging:intelfpgas/intelprogrammabledevices,primarycontenttag
ging:intelfpgas/intelprogrammabledevices/intelmax/
intelmax10fpgas,primarycontenttagging:intelfpgas/
intelfpgaintellectualproperty/basicfunctions",
    wa_curated: "curated:donotuseinexternalfilters/recommended",
    wa_emtsubject: "emtsubject:design/fpgadesign/remotesystemupgrades",

    wa_industry_type: "",
    wa_partner_prog: "",
    wa_subject: "",
    wa_biz_size: "",
    wa_emt_org: "",
    wa_emt_intel: "",
    wa_partner_type: "",
    wa_programidentifier: "",
    wa_location: "us",
    wa_language: "en",
    wa_english_title: "3.6. Error Detection",
    wa_content_type: "",
    wa_intel_platform: "",
    wa_applications: "",
    wa_local: "en_US",
    wa_intel_technology: "",
    wa_system_type: "",
    wa_product_name: "",
    wa_audience:
"emtaudience:business/btssbusinessstechnologysolutionspecialist/developer/
fpgaengineer",
    wa_life_cycle: "",
    wa_cq_url: "/content/www/us/en/docs/programmable/683865/current/error-
detection.html",
    wa_page_type_micro: "udeDocumentationDetail",
    wa_env: "prd",
    wa_cq_pub_env: "publish",
    wa_transl_status: "",
    wa_product_id: "98847,216704,216704,215648",
    wa_software: "",
    wa_reference_design: "",
    wa_codename: "",
    wa_created_date: "1639788877006",
    wa_modified_date: "1639788877013",
    wa_off_time: "1924992000000",
    wa_ownedby: "",
    wa_managedby: "",
    wa_idz_nid : "",
    wa_event_type: "",
    wa_idz_custom_tags: "",
    wa_programming_language: "",

```



```

        wa_skill_level: "",
        wa_solution: "",
        wa_product_formFactor: "",
        wa_operating_system: "",
        wa_marketing_products: "",
        wa_ssg_third_party_prod_sys_sol: "",
        wa_upeNamespace: "",
        wa_doc_id:"683865",
        wa_doc_version:"current",
        wa_doc_publishdate:"5/26/2022",

        wa_secondary_content_type:
"emtcontenttype:designanddevelopmentreference/developerguide/developeruse
rguide"

};

```

```

cq_tms.wa_tms_sync_load = "deferred";

```

```

</script><script>
    var chatContextObj = {};
    chatContextObj["locale"] = 'en-US';
    chatContextObj["app"] = 'PSG';
    chatContextObj["supportProductMap"] = 'NA';
</script><script>!function(){var e=setInterval(function(){if(typeof
$CQ&&($CQ(function(){CQ_Analytics.SegmentMgr.loadSegments("/etc/segmenta
tion"),CQ_Analytics.ClientContextUtils.init("/etc/clientcontext/
intel",window.location.pathname.substr(0,window.location.pathname.indexOf("."))
})),clearInterval(e)),100)}();</script><link rel="stylesheet" type="text/css"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
commons-page.min.css"><link rel="stylesheet" type="text/css"
href="/etc.clientlibs/settings/wcm/designs/intel/us/en/css/resources/css/
intel.rwd.override.css"><link rel="stylesheet" type="text/css"
href="/etc.clientlibs/settings/wcm/designs/intel/us/en/css/resources/css/
intel.rwd.override.css"><style type="text/css">.MJXp-script {font-size: .8em}
.MJXp-right {-webkit-transform-origin: right; -moz-transform-origin: right; -ms-
transform-origin: right; -o-transform-origin: right; transform-origin: right}
.MJXp-bold {font-weight: bold}
.MJXp-italic {font-style: italic}
.MJXp-scr {font-family: MathJax_Script,'Times New
Roman','Times',STIXGeneral,serif}
.MJXp-frak {font-family: MathJax_Fraktur,'Times New
Roman','Times',STIXGeneral,serif}
.MJXp-sf {font-family: MathJax_SansSerif,'Times New
Roman','Times',STIXGeneral,serif}
.MJXp-cal {font-family: MathJax_Caligraphic,'Times New
Roman','Times',STIXGeneral,serif}

```

```

.MJXp-mono {font-family: MathJax_Typewriter,'Times New
Roman',Times,STIXGeneral,serif}
.MJXp-largeop {font-size: 150%}
.MJXp-largeop.MJXp-int {vertical-align: -.2em}
.MJXp-math {display: inline-block; line-height: 1.2; text-indent: 0; font-family:
'Times New Roman',Times,STIXGeneral,serif; white-space: nowrap; border-
collapse: collapse}
.MJXp-display {display: block; text-align: center; margin: 1em 0}
.MJXp-math span {display: inline-block}
.MJXp-box {display: block!important; text-align: center}
.MJXp-box:after {content: " "}
.MJXp-rule {display: block!important; margin-top: .1em}
.MJXp-char {display: block!important}
.MJXp-mo {margin: 0 .15em}
.MJXp-mfrac {margin: 0 .125em; vertical-align: .25em}
.MJXp-denom {display: inline-table!important; width: 100%}
.MJXp-denom > * {display: table-row!important}
.MJXp-surd {vertical-align: top}
.MJXp-surd > * {display: block!important}
.MJXp-script-box > * {display: table!important; height: 50%}
.MJXp-script-box > * > * {display: table-cell!important; vertical-align: top}
.MJXp-script-box > *:last-child > * {vertical-align: bottom}
.MJXp-script-box > * > * > * {display: block!important}
.MJXp-mphantom {visibility: hidden}
.MJXp-munderover {display: inline-table!important}
.MJXp-over {display: inline-block!important; text-align: center}
.MJXp-over > * {display: block!important}
.MJXp-munderover > * {display: table-row!important}
.MJXp-mtable {vertical-align: .25em; margin: 0 .125em}
.MJXp-mtable > * {display: inline-table!important; vertical-align: middle}
.MJXp-mtr {display: table-row!important}
.MJXp-mtd {display: table-cell!important; text-align: center; padding: .5em 0
0 .5em}
.MJXp-mtr > .MJXp-mtd:first-child {padding-left: 0}
.MJXp-mtr:first-child > .MJXp-mtd {padding-top: 0}
.MJXp-mlabeledtr {display: table-row!important}
.MJXp-mlabeledtr > .MJXp-mtd:first-child {padding-left: 0}
.MJXp-mlabeledtr:first-child > .MJXp-mtd {padding-top: 0}
.MJXp-merror {background-color: #FFFF88; color: #CC0000; border: 1px solid
#CC0000; padding: 1px 3px; font-style: normal; font-size: 90%}
.MJXp-scale0 {-webkit-transform: scaleX(.0); -moz-transform: scaleX(.0); -ms-
transform: scaleX(.0); -o-transform: scaleX(.0); transform: scaleX(.0)}
.MJXp-scale1 {-webkit-transform: scaleX(.1); -moz-transform: scaleX(.1); -ms-
transform: scaleX(.1); -o-transform: scaleX(.1); transform: scaleX(.1)}
.MJXp-scale2 {-webkit-transform: scaleX(.2); -moz-transform: scaleX(.2); -ms-
transform: scaleX(.2); -o-transform: scaleX(.2); transform: scaleX(.2)}
.MJXp-scale3 {-webkit-transform: scaleX(.3); -moz-transform: scaleX(.3); -ms-
transform: scaleX(.3); -o-transform: scaleX(.3); transform: scaleX(.3)}
.MJXp-scale4 {-webkit-transform: scaleX(.4); -moz-transform: scaleX(.4); -ms-
transform: scaleX(.4); -o-transform: scaleX(.4); transform: scaleX(.4)}
.MJXp-scale5 {-webkit-transform: scaleX(.5); -moz-transform: scaleX(.5); -ms-
transform: scaleX(.5); -o-transform: scaleX(.5); transform: scaleX(.5)}
.MJXp-scale6 {-webkit-transform: scaleX(.6); -moz-transform: scaleX(.6); -ms-
transform: scaleX(.6); -o-transform: scaleX(.6); transform: scaleX(.6)}

```

```
.MJXp-scale7 {-webkit-transform: scaleX(.7); -moz-transform: scaleX(.7); -ms-
transform: scaleX(.7); -o-transform: scaleX(.7); transform: scaleX(.7)}
.MJXp-scale8 {-webkit-transform: scaleX(.8); -moz-transform: scaleX(.8); -ms-
transform: scaleX(.8); -o-transform: scaleX(.8); transform: scaleX(.8)}
.MJXp-scale9 {-webkit-transform: scaleX(.9); -moz-transform: scaleX(.9); -ms-
transform: scaleX(.9); -o-transform: scaleX(.9); transform: scaleX(.9)}
.MathJax_PHTML.noError {vertical-align: ; font-size: 90%; text-align: left; color:
black; padding: 1px 3px; border: 1px solid}
</style><style id="wap-consent-banner-style-hide">#onetrust-banner-
sdk, .onetrust-pc-dark-filter.ot-fade-in{display:none !important}</style><script
type="text/javascript" async="" charset="utf-8" id="utag_intel.profile-cq.asmo-
na_2080" src="//tms-global.intel.com/profile-cq.asmo-na/prod/utag.2080.js?
utv=ut4.48.202207221456"></script><script type="text/javascript" async=""
charset="utf-8" id="utag_intel.profile-cq.asmo-na_1600" src="//tms-
global.intel.com/profile-cq.asmo-na/prod/utag.1600.js?
utv=ut4.48.202207221456"></script><script type="text/javascript" async=""
charset="utf-8" id="utag_intel.profile-cq.asmo-na_1731" src="//tms-
global.intel.com/profile-cq.asmo-na/prod/utag.1731.js?
utv=ut4.48.202207221456"></script><script type="text/javascript" async=""
charset="utf-8" id="utag_intel.profile-cq.asmo-na_1715" src="//tms-
global.intel.com/profile-cq.asmo-na/prod/utag.1715.js?
utv=ut4.48.202207221456"></script><style id="at-makers-style" class="at-
flicker-control">
.mboxDefault {visibility: hidden;}
</style></head>
```

```
<body class="page-is-published global-nav new_browser cookie-  
oldbrowser"><div id="MathJax_Message" style="display: none;"></div>
```

```
<div class="skip-to-main-content">  
  <div class="sb-skipLinkWrapper invisible">  
    <a href="#primary-content" class="inline-block bg-greenDarkApron color-  
textWhite text-bold text-noUnderline sb-skipLink visible">Skip To Main  
Content</a>  
  </div>  
</div>
```

```
<script>
  var isLoggedIn = (document.cookie.indexOf('IGHFLoggedIn') != -1);
  var loginValidateURL =
'https://www.intel.com/libs/apps/intel/myintel/profile.html/validate/loggedin';
</script>
```

```
<div class="global">
```

```
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
nav.min.css" as="style"><link rel="stylesheet"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
nav.min.css" type="text/css">
<link rel="preload"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
secondaryNav.min.css" as="style"><link rel="stylesheet"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
secondaryNav.min.css" type="text/css">
```

```
<div class="global-nav-redesign global component" data-
component="global-nav-redesign" data-component-id="1">
  <header role="banner">
    <nav class="intel-navbar advanced-search" role="navigation" aria-
label="main navigation" data-igm="">
      <!-- Brand and toggle get grouped for better mobile display -->
      <div class="navbar-wrapper">

        <div class="navbar-logo">
          <a href="/content/www/us/en/homepage.html" alt="Intel
homepage" class="intel-logo-rebrand">
```

```
        
    </a>
</div>
```

```
    <div class="navbar-left">
        <!-- mobile: menu toggle, sign in -->
        <div class="visible-xs">
            <button type="button" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" class="mega-hamburger
nav-link-icon nav-link-icon-toggle collapsed" data-target="#primary-nav" aria-
expanded="false" aria-controls="primary-nav" data-mega-
control="hamburger">
```

```
                <span class="sr-only">Toggle Navigation</span>
                <span class="fa-intel-menu icon-toggle-off"></span>
                <span class="fa-cancel-thin icon-toggle-on"></span>
            </button>
```

```
        </div>
```

```
    <!-- START DYNAMIC NAVIGATION MENEU -->
```

```
    <div class="collapse mega-menu-collapse" id="primary-nav">
```

```
        <div class="mega-menu-wrap">
```

```
            <ol class="mega-navbar unique-container-global-nav-
```

```
items">
```

```
                <!-- Start: Primary Nav Items -->
```

```
<li class="primary-nav-item">
  <button role="button" class="nav-link-primary collapsed" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" id="trigger-menu-0" data-
parent="#primary-nav" data-target="#menu-0" data-mega-control="l1" aria-
expanded="false" data-secure-link="none"
aria-controls="menu-0">Products</button>
```

```
<div class="mega-panel collapse" id="menu-0" role="region" aria-
expanded="false" aria-hidden="true" aria-label="Products Menu">
```

```
<div class="mega-panel-wrap">
  <div class="mega-panel-body">
    <div class="mega-body-wrap">
```

```
      <!-- If there is an unique level 2 it will use mega panel
layout !-->
```



<!-- +-----+ -->

```
<div class="mega-panel-heading" data-secure-link="none">
  <div class="nav-l2-container">
    <a href="/content/www/us/en/products/overview.html" class="nav-l2
nav-l2--no-border" data-
wap="{&quot;category&quot;:&quot;products&quot;,&quot;sectiontype&quot;:&
quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
      <span class=""></span>
      Products Home
    </a>
  </div>
```

```
<div class="panel-content flex-content-wrap">
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/details/processors.html" class="nav-l3
has-link" data-wap="{&quot;category&quot;:&quot;products-
home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class="fa-processors"></span>
  Processors
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/products/details/processors/xeon/scalable.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;;&quot;;&quot;sectiontype&quot;:&quot;sub
heading&quot;;&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Xeon® Scalable
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/xeon.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Intel® Xeon®
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/core.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Intel® Core™
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/pentium.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Pentium®
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/celeron.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Celeron®
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/atom.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Intel Atom®
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/processors/movidius-
vpu.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Intel® Movidius™ VPUs
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/embedded-
processors.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    IoT and Embedded Processors
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/systems-devices.html" class="nav-l3
has-link" data-wap="{&quot;category&quot;:&quot;products-
home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class="fa-system-devices"></span>
  Systems & Devices
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```



```
<li data-secure-link="none">
  <a
href="/content/www/us/en/products/systems-devices/laptops/evo.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Evo™
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/systems-devices/laptops.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Laptops
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/products/docs/boards-kits/nuc/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® NUC
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/systems-devices/desktops.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Desktops
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/products/systems-devices/workstations.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Workstations
  </a>
</li>
```

<!-- +-----+ -->

```

    <li data-secure-link="none">
      <a
href="/content/www/us/en/architecture-and-technology/vpro/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Intel vPro®
      </a>
    </li>

```

```

  </ul>
</div>

```

```

</div>

```

<!-- +-----+ -->

```

<div class="panel-item" data-secure-link="none">

```

```
<a href="/content/www/us/en/products/details/servers.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;products-home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&quot;:&quot;level3&quot;}">
  <span class="fa-server-products"></span>
  Server Products
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
```

```

        <a href="/content/www/us/en/products/details/servers/server-
systems.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Single Node Servers
    </a>
</li>

```

```

<!-- +-----+ -->

```

```

    <li data-secure-link="none">
        <a href="/content/www/us/en/products/details/servers/multi-node-server-
systems.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Multi Node Servers
    </a>
</li>

```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/servers/data-center-
systems.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Data Center Systems
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
```

```

        <a href="/content/www/us/en/products/details/servers/server-
chassis.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
            <span class=""></span>
            Server Chassis
        </a>
</li>

```

```

<!-- +-----+ -->

```

```

        <li data-secure-link="none">
            <a href="/content/www/us/en/products/details/servers/server-
boards.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
                <span class=""></span>
                Server Boards
            </a>
        </li>

```



<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/servers/raid.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    SAS/RAID Products
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
```

```
<a href="/content/www/us/en/server-management/intel-server-
management.html" class="nav-l4" data-
wap="{&quot;category&quot;;&quot;&quot;;&quot;sectiontype&quot;;&quot;sub
heading&quot;;&quot;linktype&quot;;&quot;level4&quot;}">
```

```
<span class=""></span>
  Intel® Server Management
</a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/programmable.html" class="nav-l3 has-
link" data-wap="{&quot;category&quot;;&quot;products-
home&quot;;&quot;sectiontype&quot;;&quot;subheading&quot;;&quot;linktype&
quot;;&quot;level3&quot;}">
```

```
<span class="fa-fpga-products"></span>
  FPGAs & Programmable Devices
```

</a>

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/products/details/fpga.html" class="nav-l4"
data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Intel® FPGAs
      </a>
    </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/programmable/edge-centric-
fpga.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Edge-Centric FPGAs
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/fpga/max.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    CPLDs
```

```
</a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/programmable/configuration-
device.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Configuration Devices
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/products/details/fpga/development-tools/quartus-
prime.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Quartus® Prime Design Software
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/fpga/intellectual-
property.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
```

Intellectual Property  
</a>  
</li>

<!-- +-----+ -->

<li data-secure-link="none">  
    <a href="/content/www/us/en/products/details/fpga/development-kits.html" class="nav-l4" data-wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">  
        <span class=""></span>  
        Boards & Kits  
    </a>  
</li>

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/fpga/platforms/pac.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Acceleration Cards
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```



```
<a href="/content/www/us/en/products/details/easic.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;;&quot;products-home&quot;;&quot;sectiontype&quot;;&quot;subheading&quot;;&quot;linktype&quot;;&quot;level3&quot;}">
  <span class="fa-processors"></span>
  Structured ASICs
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/easic/n5x.html"
class="nav-l4" data-
wap="{&quot;category&quot;;&quot;&quot;;&quot;sectiontype&quot;;&quot;sub
heading&quot;;&quot;linktype&quot;;&quot;level4&quot;}">
    <span class=""></span>
    Intel® eASIC™ N5X Devices
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/easic/n3xs.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
  Intel® eASIC™ N3XS Devices
</a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/easic/n3x.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® eASIC™ N3X Devices
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/easic/easicopy.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® easicopy™ Devices
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/details/chipsets.html" class="nav-l3 has-
link" data-wap="{&quot;category&quot;:&quot;products-
home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class="fa-chipsets-1"></span>
  Chipsets
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/chipsets/mobile-
chipsets.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Mobile
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/chipsets/desktop-
chipsets.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Desktop
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/chipsets/server-chipsets.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Server
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/documentation-resources/developer.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Embedded
      </a>
    </li>
```

```
  </ul>
</div>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/details/discrete-gpus.html" class="nav-l3
has-link" data-wap="{&quot;category&quot;:&quot;products-
home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class="fa-discrete-graphic-gpu-spark"></span>
  Graphics Processing Units
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/discrete-gpus/arc.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
```



Intel® Arc™  
</a>  
</li>

<!-- +-----+ -->

<li data-secure-link="none">  
    <a href="/content/www/us/en/products/discrete-gpus/iris-xe-max.html"  
class="nav-l4" data-  
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub  
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">  
        <span class=""></span>  
        Intel® Iris® X<sup>e</sup> MAX  
    </a>  
</li>

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/discrete-gpus/server-graphics-
card.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Server GPU
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/details/memory-storage.html"
class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;products-
home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class="fa-memory-storage-1"></span>
  Memory & Storage
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/memory-storage.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;;&quot;;&quot;sectiontype&quot;:&quot;sub
heading&quot;;&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Solid State Drives
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/memory-storage/optane-
memory.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Optane™ Memory
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/docs/memory-storage/optane-
persistent-memory/overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Optane™ Persistent Memory
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/products/details/wireless.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;products-home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&quot;:&quot;level3&quot;}">
  <span class="fa-wireless-products"></span>
  Wireless Products
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
  <li data-secure-link="none">
    <a href="/content/www/us/en/products/details/wireless/killer-series.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
      <span class=""></span>
      Intel® Killer™ Wireless Products
    </a>
  </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/wireless/wi-fi-6e-
series.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Wi-Fi 6E Products
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/wireless/wi-fi-6-
series.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Wi-Fi 6 Products
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/wireless/wireless-ac-
products.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Wireless-AC Products
  </a>
</li>
```

```
</ul>
</div>
```



</div>

<!-- +-----+ -->

<div class="panel-item" data-secure-link="none">

<a href="/content/www/us/en/products/network-io.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;products-home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&quot;:&quot;level3&quot;}">  
    <span class="fa-ethernet-products"></span>  
    Network Communications and I/O  
</a>

<div class="panel-item-content">  
    <ul class="panel-links nav-l4-list list-unstyled">

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/architecture-and-technology/ethernet.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Intel® Ethernet Technologies
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/details/ethernet.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
```

```
<span class=""></span>
  Intel® Ethernet Products
</a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/network-io/smartnic.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Infrastructure Processing Units (IPUs)
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/network-io/high-performance-
fabrics/silicon-photonics.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Silicon Photonics Optical Transceivers
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/products/network-io/programmable-
ethernet-switch.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
```

```
<span class=""></span>
  Programmable Ethernet Switch Products
</a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="https://ark.intel.com/content/www/us/en/ark.html" class="nav-l3 has-
link" data-wap="{&quot;category&quot;:&quot;products-
home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class="fa-book"></span>
  Product Specifications
</a>
```

```
        </div>
    </div>
</div>
```

```
        </div>
    </div>
</div>
</li>
```

```
<li class="primary-nav-item">
    <button role="button" class="nav-link-primary collapsed" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" id="trigger-menu-1" data-
parent="#primary-nav" data-target="#menu-1" data-mega-control="l1" aria-
expanded="false" data-secure-link="none"
aria-controls="menu-1">Support</button>
```

```
<div class="mega-panel collapse" id="menu-1" role="region" aria-
expanded="false" aria-hidden="true">
```

```
    <div class="mega-panel-wrap">
        <div class="mega-panel-body">
            <div class="mega-body-wrap">

                <!-- If there is an unique level 2 it will use mega panel
layout !-->
```

```
        <div class="panel-content flex-content-wrap">
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;:&quot;supportanalytics&quot;;&quot;sectiontype&
quot;:&quot;subheading&quot;;&quot;linktype&quot;:&quot;level2&quot;}">
    <span class=""></span>
    Drivers & Downloads
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/support/detect.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Auto-update your Drivers
  </a>
</li>
```

<!-- +-----+ -->



```
<li data-secure-link="none">
  <a href="/content/www/us/en/download-center/home.html" class="nav-
l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Download Center
  </a>
</li>
```

```
</ul>
</div>
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;;&quot;supportanalytics&quot;;&quot;sectiontype&
quot;;&quot;subheading&quot;;&quot;linktype&quot;;&quot;level2&quot;}">
    <span class=""></span>
    Support For
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/support.html" class="nav-l4" data-
wap="{&quot;category&quot;;&quot;&quot;;&quot;sectiontype&quot;;&quot;sub
heading&quot;;&quot;linktype&quot;;&quot;level4&quot;}">
    <span class=""></span>
    Products
  </a>
```

</li>

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/developer/get-help/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Developers
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/supplier/resources/self-help/intel-
corporation-support.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Suppliers
  </a>
</li>
```

```
</ul>
</div>
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;;&quot;supportanalytics&quot;;&quot;sectiontype&
quot;;&quot;subheading&quot;;&quot;linktype&quot;;&quot;level2&quot;}">
    <span class=""></span>
    Resources
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/support/topics/utility-tools.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Product Tools & Utilities
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="https://community.intel.com/" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Support Community
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="https://supporttickets.intel.com/servicecenter?lang=en-US"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Warranty Information
  </a>
</li>
```

<!-- +-----+ -->

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/support/contact-intel.html" class="nav-l4"
data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Contact Support
      </a>
    </li>
```

```
    </ul>
  </div>
</div>
```

```
    </div>

  </div>

</div>
</div>
</li>
```

```
<li class="primary-nav-item">
  <button role="button" class="nav-link-primary collapsed" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" id="trigger-menu-2" data-
parent="#primary-nav" data-target="#menu-2" data-mega-control="1" aria-
expanded="false" data-secure-link="none" aria-controls="menu-
2">Solutions</button>
```



```
<div class="mega-panel collapse" id="menu-2" role="region" aria-  
expanded="false" aria-hidden="true">
```

```
<div class="mega-panel-wrap">  
  <div class="mega-panel-body">  
    <div class="mega-body-wrap">
```

```
      <!-- If there is an unique level 2 it will use mega panel  
layout !-->
```

```
<div class="panel-content flex-content-wrap">
```

```
<!-- +-----+ -->
```

```

<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;:&quot;solutions&quot;,&quot;sectiontype&quot;:&
quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
    <span class=""></span>
    Business Solutions
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">

```

```

<!-- +-----+ -->

```

```

<li data-secure-link="none">
  <a href="/content/www/us/en/artificial-intelligence/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    AI
  </a>
</li>

```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/wireless-network/5g-technology-
overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    5G
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/business/overview.html" class="nav-l4"
data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Business PCs
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/cloud-computing/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Cloud Computing
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/edge-computing/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Edge Computing
      </a>
    </li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/internet-of-things/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        IOT
      </a>
    </li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/topics/overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        View all &gt;
      </a>
    </li>
```

```

    </ul>
  </div>
</div>

```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```

        <div class="nav-l3" data-
wap="{&quot;category&quot;;&quot;solutions&quot;;&quot;sectiontype&quot;;&
quot;subheading&quot;;&quot;linktype&quot;;&quot;level2&quot;}">
            <span class=""></span>
            Consumer Solutions
        </div>
        <div class="panel-item-content">

            <ul class="panel-links nav-l4-list list-unstyled">

```

```

<!-- +-----+ -->

```

```

        <li data-secure-link="none">
            <a href="/content/www/us/en/products/creative-pro.html" class="nav-l4"
data-
wap="{&quot;category&quot;;&quot;&quot;;&quot;sectiontype&quot;;&quot;sub
heading&quot;;&quot;linktype&quot;;&quot;level4&quot;}">
                <span class=""></span>
                Creators
            </a>
        </li>

```



<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/gaming/serious-gaming.html" class="nav-
l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Gaming
  </a>
</li>
```

```
</ul>
</div>
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;:&quot;solutions&quot;,&quot;sectiontype&quot;:&
quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
    <span class=""></span>
    Industry Solutions
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/education/intel-education.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Education
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/financial-services-it/financial-services-
overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Financial Services
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/government/public-sector-solutions-
overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Government & Public Sector
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/healthcare-it/healthcare-overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Healthcare & Life Sciences
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/internet-of-things/industrial-iot/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Industrial
```

```
</a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/retail/overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Retail
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/transportation/overview.html" class="nav-
l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
      Transportation
    </a>
  </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/industries/overview.html" class="nav-l4"
data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
```

```

    <span class=""></span>
    View all &gt;
  </a>
</li>

```

```

  </ul>
</div>
</div>

```

```
<!-- +-----+ -->
```



```

        <div class="panel-item" data-secure-link="none">
            <div class="nav-l3" data-
wap="{&quot;category&quot;:&quot;solutions&quot;,&quot;sectiontype&quot;:&
quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
                <span class=""></span>
                Services
            </div>
            <div class="panel-item-content">

                <ul class="panel-links nav-l4-list list-unstyled">

```

```

<!-- +-----+ -->

```

```

        <li data-secure-link="none">
            <a href="/content/www/us/en/software/data-center-overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
                <span class=""></span>
                Intel Data Center Manager
            </a>
        </li>

```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/foundry/intel-foundry-services.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel Foundry Services
  </a>
</li>
```

```
</ul>
</div>
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
  <div class="nav-l3" data-
wap="{&quot;category&quot;;&quot;solutions&quot;;&quot;sectiontype&quot;;&
quot;subheading&quot;;&quot;linktype&quot;;&quot;level2&quot;}">
    <span class=""></span>
    Resources
  </div>
  <div class="panel-item-content">

    <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/customer-spotlight/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Customer Spotlight
      </a>
    </li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/tech-tips-and-tricks/tech-tips.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
```

```
<span class=""></span>
  Technology Tips & Tricks
</a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/partner/showcase/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Partner Showcase
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="https://marketplace.intel.com/s/" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Intel® Solutions Marketplace
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
<li data-secure-link="none">
  <a href="/content/www/us/en/company-overview/wonderful.html"
class="nav-l4" data-
```

```
wap="{&quot;category&quot;:&quot;&quot;, &quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
  People Creating Wonderful
</a>
</li>
```

```
</ul>
</div>
</div>
```

```
</div>
</div>
</div>
</div>
</div>
</li>
```

```
<li class="primary-nav-item">
  <button role="button" class="nav-link-primary collapsed" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" id="trigger-menu-3" data-
parent="#primary-nav" data-target="#menu-3" data-mega-control="l1" aria-
expanded="false" data-secure-link="none" aria-controls="menu-
3">Developers</button>
```

```
<div class="mega-panel collapse" id="menu-3" role="region" aria-
expanded="false" aria-hidden="true">
```

```
<div class="mega-panel-wrap">
  <div class="mega-panel-body">
    <div class="mega-body-wrap">
```

```
      <!-- If there is an unique level 2 it will use mega panel
layout !-->
```

```
<!-- +-----+ -->
```

```
<div class="mega-panel-heading" data-secure-link="none">

  <div class="nav-l2-container">
    <a href="/content/www/us/en/developer/overview.html" class="nav-l2
nav-l2--no-border" data-
wap="{&quot;category&quot;:&quot;developers&quot;,&quot;sectiontype&quot;
:&quot;subheading&quot;,&quot;linktype&quot;:&quot;level2&quot;}">
      <span class=""></span>
      Developers Home
    </a>
  </div>
```

```
<div class="panel-content flex-content-wrap">
```



```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/developer/tools/overview.html" class="nav-l3 has-  
link" data-wap="{&quot;category&quot;:&quot;developers-  
home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&  
quot;:&quot;level3&quot;}">  
  <span class=""></span>  
  Development Tools  
</a>
```

```
<div class="panel-item-content">  
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a
href="/content/www/us/en/developer/tools/software-catalog/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Software Catalog
      </a>
    </li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="/content/www/us/en/download-center/home.html" class="nav-
l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Download Center
      </a>
    </li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="https://designintools.intel.com/" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Design Tools and Services
      </a>
    </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="https://registrationcenter.intel.com/en/" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Software Registration
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

<!-- +-----+ -->

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/resources-documentation/developer.html"
class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;developers-
home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class=""></span>
  Resources & Documentation
</a>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/developer/learn/overview.html" class="nav-l3 has-
link" data-wap="{&quot;category&quot;:&quot;developers-
home&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class=""></span>
  Learn
</a>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/developer/topic-technology/overview.html"
class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;developers-
home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class=""></span>
  Topics & Technologies
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/developer/topic-technology/artificial-
intelligence/overview.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Artificial Intelligence
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/developer/topic-technology/client/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Client
  </a>
</li>
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a
href="/content/www/us/en/developer/topic-technology/cloud/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
      <span class=""></span>
      Cloud
    </a>
  </li>
```



<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/developer/topic-technology/gamedev/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Game Development
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a
href="/content/www/us/en/developer/topic-technology/edge-5g/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Edge, IoT & 5G
```

</a>  
</li>

<!-- +-----+ -->

<li data-secure-link="none">  
 <a href="/content/www/us/en/developer/topic-technology/high-performance-computing/overview.html" class="nav-l4" data-wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">  
 <span class=""></span>  
 High Performance Computing (HPC)  
 </a>  
</li>

</ul>  
</div>

</div>

<!-- +-----+ -->

<div class="panel-item" data-secure-link="none">

<a href="/content/www/us/en/developer/community/overview.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;developers-home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&quot;:&quot;level3&quot;}">  
    <span class=""></span>  
    Communities & Events  
</a>

</div>

<!-- +-----+ -->

<div class="panel-item" data-secure-link="none">

```
<a href="/content/www/us/en/developer/get-help/overview.html" class="nav-l3
has-link" data-wap="{&quot;category&quot;:&quot;developers-
home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class=""></span>
  Get Help
</a>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/developer/programs/overview.html" class="nav-l3
has-link" data-wap="{&quot;category&quot;:&quot;developers-
home&quot;;&quot;sectiontype&quot;:&quot;subheading&quot;;&quot;linktype&
quot;:&quot;level3&quot;}">
  <span class=""></span>
  Developer Programs
```

</a>

</div>

</div>

</div>

</div>

</div>

</div>

</div>

</li>

```
<li class="primary-nav-item">
  <button role="button" class="nav-link-primary collapsed" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" id="trigger-menu-4" data-
parent="#primary-nav" data-target="#menu-4" data-mega-control="l1" aria-
expanded="false" data-secure-link="none"
aria-controls="menu-4">Partners</button>
```

```
<div class="mega-panel collapse" id="menu-4" role="region" aria-
expanded="false" aria-hidden="true">
```

```
<div class="mega-panel-wrap">
  <div class="mega-panel-body">
    <div class="mega-body-wrap">
```

```
      <!-- If there is an unique level 2 it will use mega panel
layout !-->
```

<!-- +-----+ -->

<div class="mega-panel-heading" data-secure-link="none">

<div class="panel-content flex-content-wrap">

<!-- +-----+ -->

<div class="panel-item" data-secure-link="none">

```
<a href="/content/www/us/en/partner-alliance/overview.html" class="nav-l3 has-link" data-wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&quot;:&quot;level3&quot;}">
  <span class=""></span>
  Intel® Partner Alliance
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
  <li data-secure-link="none">
    <a
      href="/content/www/us/en/partner-alliance/membership/overview.html"
      class="nav-l4" data-wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;subheading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        About Membership
      </a>
    </li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/my-intel/partner-login.html" class="nav-l4"
data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
  <span class=""></span>
    Already a Member? Login
  </a>
</li>
```



<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/partner-alliance/marketplace/submit-a-
solution.html" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Submit a Solution
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="/content/www/us/en/partner-alliance/help/overview.html"
class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Get Help
  </a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="https://marketplace.intel.com/s/" class="nav-l3 has-link" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level3&quot;}">
  <span class=""></span>
  Intel® Solutions Marketplace
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

<!-- +-----+ -->

```
<li data-secure-link="none">
  <a href="https://marketplace.intel.com/s/offerings-by-category?
language=en_US" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
    <span class=""></span>
    Offerings by Category
  </a>
</li>
```

<!-- +-----+ -->

```
<li data-secure-link="none">
```

```
<a href="https://marketplace.intel.com/s/partner-directory?
language=en_US" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
```

```
<span class=""></span>
    Partner Directory
</a>
</li>
```

```
</ul>
</div>
```

```
</div>
```

```
<!-- +-----+ -->
```

```
<div class="panel-item" data-secure-link="none">
```

```
<a href="/content/www/us/en/secure/retail/partner-solutions/overview.html"
class="nav-l3 has-link" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level3&quot;}">
```

```
<span class=""></span>
    Retail Partner Solutions
</a>
```

```
<div class="panel-item-content">
  <ul class="panel-links nav-l4-list list-unstyled">
```

```
<!-- +-----+ -->
```

```
    <li data-secure-link="none">
      <a href="https://supporttickets.intel.com/supportrequest?lang=en-
US&amp;productId=211841%3A11430" class="nav-l4" data-
wap="{&quot;category&quot;:&quot;&quot;,&quot;sectiontype&quot;:&quot;sub
heading&quot;,&quot;linktype&quot;:&quot;level4&quot;}">
        <span class=""></span>
        Retail Support
      </a>
    </li>
```

```
  </ul>
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```

        </div>
    </div>
</div>
</li>

```

```

<!-- Start Mega More+ Nav Item -->
<li class="primary-nav-item primary-nav-item-more hidden" data-mega-control-
more-item="" style="">
    <button data-wap="{&quot;linktype&quot;;&quot;level1&quot;}"
role="button" class="nav-link-primary collapsed" id="trigger-mega-more-panel"
data-target="#mega-more-panel" data-mega-control="more-l1" aria-
expanded="false" aria-controls="mega-more-panel">More +
    </button>
    <div class="mega-panel mega-more-panel collapse" id="mega-more-panel"
role="region" aria-expanded="false" aria-hidden="true" aria-
labelledby="trigger-mega-more-panel">
        <div class="mega-panel-wrap">
            <div class="mega-panel-body">
                <div class="panel-content">
                    <ol class="mega-navbar mega-navbar-more-list">

                        </ol>
                    </div>
                </div>
            </div>
        </div>
    </li>

```

```

<script type="text/javascript">
/**
 * This chunk of code is used to bypass Akamai cache - since this goes to the
globalNav that can be cleared independently
 */
var globalMenuConfigs = {
    idpUrl:
"https://sfederation.intel.com/federation2/sp/WebExperienceManagementSolutio
nonAEMforIntel/d3d3LmludGVsLmNvbQ%3D%3D"
}

```

```
</script>
```

```
<!-- End Mega More+ Nav Item -->
```

```
</ol>
```

```
    </div>
```

```
  </div>
```

```
</div>
```

```
<!-- START MOBLE TOGGLE buttons -->
```

```
<div class="navbar-right">
```

```
  <!-- START: NON-signed in panel -->
```

```

<span id="not-logged-in-scenario" class="">
  <button type="button" title="Sign In" class="nav-link-icon nav-link-icon-
toggle collapsed" data-wap="{&quot;linktype&quot;;&quot;level1&quot;}" data-
target="#panel-signin" aria-expanded="false" aria-controls="panel-signin" data-
mega-control="signin">
    <span class="sr-only">Sign In</span>
    <span class="fa-intel-user-o icon-toggle-off"></span>
    <span class="fa-intel-user icon-toggle-on"></span>
  </button>

  <div class="mega-panel panel-layout-signin collapse" id="panel-signin">
  <div class="mega-panel-wrap">
    <div class="mega-panel-body">
      <div class="panel-content flex-content-wrap">
        <div class="panel-item with-sep-line panel-col-1of2">
          <form id="igm-form-signin"
action="https://www.intel.com/libs/apps/intel/login.json/securitytoken"
method="POST" name="igm-form-signin" class="intel-form" novalidate="">
            <h3 class="section-title">Sign In</h3>
            <div class="flex-layout-md">
              <div class="form-group flex-col-md vertical-gutter">
                <label for="username" class="component" data-
component="wa_skip_track" data-component-id="1">
                  <span class="sr-only">Username</span>
                  <input class="form-control form-input" aria-
describedby="uname-error" name="userid" id="username"
placeholder="Username" required="">
                </label>
                <div class="error validation-messages " id="uname-error">
                  <div class="rule broken">Your username is
missing</div>
                </div>
              </div>
              <div class="form-group flex-col-md vertical-gutter">
                <label for="password" class="component" data-
component="wa_skip_track" data-component-id="1">
                  <span class="sr-only">Password</span>
                  <input type="password" class="form-control form-input"
aria-describedby="pwd-error" id="password" name="password"
placeholder="Password" required="" autocomplete="off">
                </label>
                <div class="error validation-messages " id="pwd-error">
                  <div class="rule broken">Your password is
missing</div>
                </div>
              </div>
            </div>
          </div>
        </div>
      </div>
    </div>
  </div>

```



<p class="vertical-gutter">By signing in, you agree to our <a href="/content/www/us/en/legal/terms-of-use.html">Terms of Service</a>.</p>

<div class="flex-layout-md flex-align-center vertical-gutter">  
    <input type="hidden" name="callBack"  
id="callBackSimplify">  
    <input type="hidden" name="queryParam" id="queryParam"  
value="https://www.intel.com/content/www/us/en/docs/programmable/683865/  
current/error-detection.html">  
    <input type="submit" class="btn btn-primary blue-btn-white-  
text" value="Sign In" data-wap="{&quot;linktype&quot;:&quot;sign-in&quot;}">  
    <label for="cbRememberMe" class="has-switch-input">  
        <input id="cbRememberMe" name="rememberme"  
type="checkbox" value="true">  
        <span class="check-box"></span>  
        <span>Remember me</span>  
    </label>  
</div>

<p class="vertical-gutter">  
    Forgot your Intel  
    <a  
href="https://www.intel.com/content/www/us/en/my-intel/forgot-  
userid.html">username</a>  
    or  
    <a  
href="https://www.intel.com/content/www/us/en/my-intel/forgot-  
password.html">password</a>?  
</p>  
<p class="vertical-gutter">  
    <a href="/content/www/us/en/support/topics/sign-in-  
faq.html">Frequently Asked Questions</a>  
</p>  
</form>  
<div class="alert alert-danger" id="login-error" role="alert"></div>  
</div>  
<div class="panel-item panel-col-variant">  
    <div class="padding-wrap valign-to-input">  
        <p class="vertical-gutter" style="display: none;">Do you work  
for Intel? <a data-wap\_ref="sign-in-general" href="#"  
onclick="intel.signinsimplify.geturl('https://myapps.microsoft.com/signin/  
Azure\_To\_SEPMP\_Bridge\_PR\_IAP\_7086/b5335fcd-30d1-4825-8a79-  
4234279c8301?tenantId=46c98d88-e344-4ed4-8496-  
4ed7712e255d&amp;RelayState=')">  
        Sign in here</a>.  
    </p>

<p class="vertical-gutter">Don't have an Intel account?  
    <a data-wap\_ref="sign-up-general" href="#"  
onclick="intel.signinHeaderSimplify.doRedirect('/forms/basic-intel-  
registration.html')"> Sign up here </a>  
    for a basic account.  
</p>

```

        </div>
    </div>
</div>
</div>
</div>
</div>
</span>

```

```

<iframe id="frameSigninSimplify" tabindex="-1" title="My Intel Sign in" aria-
hidden="true" name="frameSigninSimplify"
src="/etc.clientlibs/settings/wcm/designs/intel/clientlibs/pages/commons-page/
resources/html/idamFormStaticSimplify.html" style="display:none;"></iframe>

```

```

<script>

```

```

var intel = intel || {};
intel.signinsimplifyConfig = {
    locale: '',
    messages: {
        InvalidCredential: 'The username or password you entered was invalid.',
        InvalidField: 'The username or password you entered was invalid.',
        AccountDisabled: 'For security reasons, your account has been disabled.
For help, <a href="#" class="contactLink new-tab-link" target="_blank"
rel="noopener noreferrer" >contact us</a>.',
        AccountLocked: 'Your account has been locked. For help, please read the
<a href="#" class="faqsLink new-tab-link" target="_blank" rel="noopener
noreferrer" >Sign In FAQ</a>.',
        UserNotFound: 'The username or password you entered was invalid.',
        Unknown: 'An unexpected error occurred. Try it again. For help, use the
contact or support options below.',
        PasswordExpired: 'Your password is expired. Please change your
password.',
        LoginAssistLink: 'https://signin.intel.com/ContactUs.aspx',
        faqsLink: '/content/www/my-intel/sign-in-help.html'
    },
    nameField: 'Username',
    passField: 'Password',
    signinUrl: '/libs/apps/intel/login.json/securitytoken',
    isPopup: true,
    responseHref:
'https://www.intel.com/content/www/us/en/docs/programmable/683865/current/
error-detection.html?' + window.location.hash,
    sslDomainUrl: 'www.intel.com',
    loginUrl: 'https://welcome.intel.com/login.aspx?appid=258&qlogin=true',
    ssoUri: 'https://federatesso.intel.com',
    logoutUrl: 'https://welcome.intel.com/logout.aspx',
    logoutHref:
'https://signin.intel.com/Logout?RedirectURL=https://www.intel.com/content/
www/us/en/docs/programmable/683865/current/error-detection' + '.html',
    logoutIGHFHref: 'https://signin.intel.com/Logout?RedirectURL=',
    loginErrorID: '#login-error',

```

```

        usernameID: '#username',
        remembermeID: '#cbRememberMe',
        formID: '#igm-form-signin',
        unameErrorID: '#uname-error',
        passID: '#password',
        passError: '#pwd-error',
        changePasswordUrl: '/content/www/us/en/my-intel/change-password.html',
        emailVerificationUrl: '/content/www/us/en/my-intel/email-
verification.external.html',
        aboutToExpireEmailUrl: '/content/www/us/en/my-intel/email-
verification.html',
        renewalUrl: '/content/www/us/en/secure/technology-provider/forms/renew-
technology-provider-membership.html',
        limitedUrl: '/content/www/us/en/resellers/limited-status-secondary.html',
        isaPRMDashBoardURL: '/content/www/us/en/secure/partner/solutions-
alliance/overview.html',
        itpPRMDashBoardURL: '/content/www/us/en/secure/partner/technology-
provider/iot/overview.html',
        itpisaPRMDashBoardURL:
'/content/www/us/en/secure/partner/iot-itp-isa/overview.html',
        isaRenewalURL: '/content/www/us/en/secure/partner/forms/solutions-
alliance-renewal.html',
        primaryPostLaunchURL: 'https://partner.intel.com/s/post-launch-primary',
        nonPrimaryPostLaunchURL: 'https://partner.intel.com/s/post-launch-non-
primary',
        idpUrl:
'https://sfederation.intel.com/federation2/sp/WebExperienceManagementSolution
onAEMforIntel/d3d3LmludGVsLmNvbQ%3D%3D'
    };

```

```

    if (!isLoggedIn && ((document.domain.indexOf("thailand") == -1 &&
document.domain.endsWith(".intel.com"))) ||
document.getElementById("recode50header") != null) && (navigator != null &&
navigator.userAgent.indexOf("CloudManagerTest") == -1)) {
        try {
            var xmlhttp = new XMLHttpRequest();
            xmlhttp.open('HEAD', 'https://sfederation.intel.com/federation/status.asp',
false);
            xmlhttp.withCredentials="true";
            xmlhttp.send();
            if (200 == xmlhttp.status) {
                var currentUrl = window.location.href;
                var cookiename = "IGHFtarget";
                var samlcookieValue = cookiename + "=" +
encodeURIComponent(currentUrl) + ";secure;path=/;domain=.intel.com";
                document.cookie= samlcookieValue;
                window.location.href =
'https://sfederation.intel.com/federation2/sp/WebExperienceManagementSolution
onAEMforIntel/d3d3LmludGVsLmNvbQ%3D%3D';
            }
        } catch(error) {
        }
    }
}

```

```
</script>  
<script defer="" src="/content/dam/www/global/network.js"  
type="text/javascript"></script>
```

```
<script id="myinteldrpdwn-template" type="text/x-handlebars-template">  
  <section class="myintel-tools-content" role="region"  
    aria-label="My Intel">
```

```

<div class="panel-header force-background solid brand-very-dark-gray my-
intel-menu">
    <button type="button" class="icon close pull-right" data-igm-search-
toggle="" aria-label="Close"
        tabindex="0" data-wap="" data-wap_ref="myintel-navmenu-
closing">
        <span></span>
    </button>
    <ul class="nav nav-tabs component">

```

```

        <li role="presentation" class="active" data-step='1' data-title='My
Intel Dashboard and My Tools' data-intro='<p>Click here to access the My Intel
Dashboard from any Intel.com page. From here you can also access your
Subscriptions page, as well as your personalized list of tools.</p>'\>
            <a href="#my-intel" role="tab" tabindex="0">My Intel<span
                class="fa fa-user"></span></a>
        </li>
    </ul>
</div>

```

```

<div class="my-intel-panel-body tab-content">

    <div role="tabpanel" class="tab-pane fade in active" id="my-intel">
        <ul class="myintel-links">
            {{#each myintelpagelinks}}
            <li data-agssrole="{{{agssrole}}}"
                data-blacklistedagssgroupname="{{{blacklistedagssgroupname}}}"
                data-isinternal="{{{displayOnlyInternal}}}"
                data-isexternal="{{{displayOnlyExternal}}}"
                class="{{{class}}}">
                <a target="{{{target}}}"
                    href="{{{href}}}" tabindex="0">{{{label}}}</a>
            </li>
            {{/each}}
        </ul>
        <div class="tools-pane component" data-component="myintel-tools"
data-component-id="1">
            <h5 class="my-intel-tools">My Tools</h5>

            <ul class="myintel-links">
                {{#each mytoollinks}}
                <li class="myintellink"
                    data-isinternal="{{{displayOnlyInternal}}}"
                    data-isexternal="{{{displayOnlyExternal}}}">

```

```

                <h3 style="display:none;">{{agsgroupname}}</h3>
                <h4
style="display:none;">{{blacklistedagsgroupname}}</h4>
                <a tabindex="0" href="{{linkurl}}" target="_blank"
rel="noopener noreferrer" title="">{{linktext}}</a>
                {{#if tooltip}}
                <a class="fa fa-help-circled" tabindex="0" data-
toggle="tooltip" data-html="true"
                data-title="{{tooltip}}" data-placement="bottom" data-
wap_ref="tooltip:{{linktext}}"><span
class="sr-only">{{tooltip}}</span></a>
                {{/if}}
            </li>
        {{/each}}
    </ul>
</div>
</div>

```

```

</div>
</section>
</script>

```

```

<span id="logged-in-scenario" class="hidden">

```

```

<button type="button" title="My Intel" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" class="nav-link-icon nav-
link-icon-toggle collapsed" data-target="#panel-signedin" aria-expanded="false"
aria-controls="panel-signedin" data-mega-control="signedin">
    <span class="sr-only">My Intel</span>
    <span class="fa intel-user-checked-o icon-toggle-off"></span>
    <span class="fa intel-user-checked icon-toggle-on"></span>
</button>

```

```

<div class="mega-panel panel-layout-signed-in collapse" id="panel-signedin">
    <div class="mega-panel-wrap">
        <div class="mega-panel-body">
            <div class="panel-content flex-content-wrap">

```

```

                <!-- MyIntel Section -->
                <!-- ----- -->
                <div class="panel-item hidden" id="myIntelPageLinks">
                    <a id="myIntelPageLinksHeader" class="nav-l3 has-border has-
link"></a> <!-- {{#if heading.onState}} selected{{/if}} {{#if
heading.onStateParent}} selected-parent{{/if}} -->
                    <div class="panel-item-content">
                        <ul id="myIntelPageLinksItemList" class="panel-links nav-l4-list
list-unstyled">

```

```

                        </ul>
                    </div>
                </div>
                <!-- My Tools Section -->

```

```

<!-- ----- -->
<div class="panel-item col-span-2" id="myIntelTools">

    <div class="nav-l3">
        My Tools
    </div>

    <div class="panel-item-content">
        <!--
            Note: right now this panel (myTools) has only one column/ul
            if more columns are needed, remove below's 'w-auto' class
        -->
        <ul class="panel-links nav-l4-list list-unstyled w-auto"
id="mytools-ul">

            <!-- this 'li' will be used as the template to populate this
section from the js -->
            <li class="hidden">
                <a class="nav-l4"></a>

                <button class="btn-tooltip-trigger hidden" data-
toggle="tooltip" data-placement="bottom" title="" data-original-title="">
                    <span>?</span>
                </button>
            </li>
        </ul>
    </div>
</div>

</div>

    <div class="item-actions">
        <button type="button" class="btn btn-primary"
data-sso-uri="https://federatesso.intel.com" data-logout-uri="" data-
wap="{&quot;linktype&quot;:&quot;logout&quot;}"
onclick="intel.signinsimplify.signOut()">Sign Out</button>
    </div>
</div>
</div>

</span>

```

```

<button type="button" title="Language Selector" data-
wap="{&quot;linktype&quot;:&quot;level1&quot;}" class="nav-link-icon nav-
link-icon-toggle collapsed" data-target="#panel-language-selector" aria-
label="USA (English)" aria-expanded="false" aria-controls="panel-language-
selector" data-mega-control="language-selector">
  <span class="fa-intel-globe-o icon-toggle-off"></span>
  <span class="fa-intel-globe icon-toggle-on"></span>
  <span class="nav-link-icon-label">USA (English)</span>
</button>

```

```

<div class="mega-panel panel-layout-language collapse" id="panel-language-
selector" aria-expanded="false" aria-selected="false" aria-collapsed="true">
  <div class="mega-panel-wrap">
    <div class="mega-panel-body">
      <div class="mega-panel-heading">
        <h2 class="nav-l2">
          Select Your Region
        </h2>
      </div>
      <div class="panel-content flex-content-wrap">

        <div class="panel-item col-span-2 col-span-2-md">
          <!-- region.countryName is actually region name -->
          <h3 class="nav-l3 no-border">Asia Pacific</h3>
          <ul class="list-unstyled panel-links nav-l4-list columns-2">

```

```

    <li class="lang-option">

```

```

      <a class="nav-l4" data-locale="en_xa"
href="https://www.intel.sg/content/www/xa/en/homepage.html?
countrylabel=Asia Pacific">
        Asia Pacific (English)
      </a>
    </li>

```



<li class="lang-option">

    <a class="nav-l4" data-locale="en\_au"  
href="https://www.intel.com.au/content/www/au/en/homepage.html">  
        Australia (English)  
    </a>  
</li>

<li class="lang-option">

    <a class="nav-l4" data-locale="en\_in"  
href="https://www.intel.in/content/www/in/en/homepage.html">  
        India (English)  
    </a>  
</li>

<li class="lang-option">

    <a class="nav-l4" data-locale="id\_id"  
href="https://www.intel.co.id/content/www/id/id/homepage.html">  
        Indonesia (Bahasa Indonesia)  
    </a>  
</li>

<li class="lang-option">

```
        <a class="nav-l4" data-locale="ja_jp"
href="https://www.intel.co.jp/content/www/jp/ja/docs/programmable/683865/
current/error-detection.html">
            Japan (日本)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="ko_kr"
href="https://www.intel.co.kr/content/www/kr/ko/homepage.html">
            Korea (한국)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="zh_cn"
href="https://www.intel.cn/content/www/cn/zh/docs/programmable/683865/
current/error-detection.html">
            Mainland China (中国大陆)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="zh_tw"
href="https://www.intel.com.tw/content/www/tw/zh/homepage.html">
            Taiwan (繁體中文)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="th_th"
href="https://www.thailand.intel.com/content/www/th/th/homepage.html">
            Thailand (ไทย)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="vi_vn"
href="https://www.intel.vn/content/www/vn/vi/homepage.html">
            Vietnam (Tiếng Việt)
        </a>
    </li>
```

```
</ul>
</div>
```

```
<div class="panel-item col-span-2 col-span-2-md">
    <!-- region.countryName is actually region name -->
    <h3 class="nav-l3 no-border">Europe</h3>
    <ul class="list-unstyled panel-links nav-l4-list columns-2">
```

<li class="lang-option">

    <a class="nav-l4" data-locale="fr\_fr"  
href="https://www.intel.fr/content/www/fr/fr/homepage.html">  
        France (Français)  
    </a>  
</li>

<li class="lang-option">

    <a class="nav-l4" data-locale="de\_de"  
href="https://www.intel.de/content/www/de/de/homepage.html">  
        Germany (Deutsch)  
    </a>  
</li>

<li class="lang-option">

    <a class="nav-l4" data-locale="en\_ie"  
href="https://www.intel.ie/content/www/ie/en/homepage.html">  
        Ireland (English)  
    </a>  
</li>

<li class="lang-option">

    <a class="nav-l4" data-locale="it\_it"  
href="https://www.intel.it/content/www/it/it/homepage.html">  
        Italy (Italiano)  
    </a>  
</li>

<li class="lang-option">

    <a class="nav-l4" data-locale="pl\_pl"  
href="https://www.intel.pl/content/www/pl/pl/homepage.html">  
        Poland (Polski)  
    </a>  
</li>

<li class="lang-option">

    <a class="nav-l4" data-locale="ru\_ru"  
href="https://www.intel.ru/content/www/ru/ru/homepage.html">  
        Russia (Русский)  
    </a>  
</li>

<li class="lang-option">

```
        <a class="nav-l4" data-locale="es_es"
href="https://www.intel.es/content/www/es/es/homepage.html">
            Spain (Español)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="tr_tr"
href="https://www.intel.com.tr/content/www/tr/tr/homepage.html">
            Turkey (Türkçe)
        </a>
    </li>
```

```
<li class="lang-option">
```

```
        <a class="nav-l4" data-locale="en_uk"
href="https://www.intel.co.uk/content/www/uk/en/homepage.html">
            United Kingdom (English)
        </a>
    </li>
```

```
</ul>
</div>
```

```
<div class="panel-item">
    <!-- region.countryName is actually region name -->
    <h3 class="nav-l3 no-border">Latin America</h3>
    <ul class="list-unstyled panel-links nav-l4-list">
```

<li class="lang-option">

<a class="nav-l4" data-locale="es\_xl"  
href="https://www.intel.la/content/www/xl/es/homepage.html?  
countrylabel=Argentina">

Argentina (Español)

</a>

</li>

<li class="lang-option">

<a class="nav-l4" data-locale="pt\_br"  
href="https://www.intel.com.br/content/www/br/pt/homepage.html">

Brazil (Português)

</a>

</li>

<li class="lang-option">

<a class="nav-l4" data-locale="es\_xl"  
href="https://www.intel.la/content/www/xl/es/homepage.html?  
countrylabel=Chile">

Chile (Español)

</a>

</li>

<li class="lang-option">

<a class="nav-l4" data-locale="es\_xl"  
href="https://www.intel.la/content/www/xl/es/homepage.html?  
countrylabel=Colombia">

Colombia (Español)

</a>

</li>

<li class="lang-option">

<a class="nav-l4" data-locale="es\_xl"  
href="https://www.intel.la/content/www/xl/es/homepage.html?  
countrylabel=Latin America">

Latin America (Español)

</a>

</li>

<li class="lang-option">

<a class="nav-l4" data-locale="es\_xl"  
href="https://www.intel.la/content/www/xl/es/homepage.html?  
countrylabel=Mexico">

Mexico (Español)

</a>

</li>



<li class="lang-option">

<a class="nav-l4" data-locale="es\_xl"  
href="https://www.intel.la/content/www/xl/es/homepage.html?  
countrylabel=Peru">

Peru (Español)

</a>

</li>

</ul>

</div>

<div class="panel-item">

<!-- region.countryName is actually region name -->

<h3 class="nav-l3 no-border">Middle East/Africa</h3>

<ul class="list-unstyled panel-links nav-l4-list">

<li class="lang-option">

<a class="nav-l4" data-locale="he\_il"  
href="https://www.intel.co.il/content/www/il/he/homepage.html">  
Israel (עברית)

</a>

</li>

</ul>

</div>

<div class="panel-item">

<!-- region.countryName is actually region name -->

<h3 class="nav-l3 no-border">North America</h3>

<ul class="list-unstyled panel-links nav-l4-list">

<li class="selected lang-option">

```
        <a class="nav-l4" data-locale="en_us"
href="https://www.intel.com/content/www/us/en/homepage.html">
            United States (English)
        </a>
    </li>
```

```
    <li class="lang-option">
```

```
        <a class="nav-l4" data-locale="en_ca"
href="https://www.intel.ca/content/www/ca/en/homepage.html">
            Canada (English)
        </a>
    </li>
```

```
    <li class="lang-option">
```

```
        <a class="nav-l4" data-locale="fr_ca"
href="https://www.intel.ca/content/www/ca/fr/homepage.html">
            Canada (Français)
        </a>
    </li>
```

```
    </ul>
</div>
```

```
    </div>
</div>
</div>
</div>
```

<!-- END: NON-sign in panel -->

```
<button type="button" title="Search intel.com" class="nav-link-icon toggle-
search collapsed" data-target="#simplify-search" aria-expanded="false" aria-
controls="simplify-search" data-mega-control="global-search">
```

```
<span class="sr-only">Toggle Search</span>
```

```
<span class="fa-global-search"></span>
```

```
</button>
```

```
<div class="mega-panel mega-search-panel collapse" id="simplify-search"
aria-expanded="false" aria-selected="false" aria-collapsed="true" document-
height="true">
```

```
<div class="mega-panel-wrap">
```

```
<div class="mega-panel-body">
```

```
<div class="panel-content">
```

```
<div class="search-component search-component" data-igm-
search-content="">
```

```
<form class="mega-search-form search item" data-igm-search-
control="" name="hpsform-new" id="hpsform-new"
```

```
action="/content/www/us/en/search.html" role="search" onsubmit="return
inputSearch()">
```

```
<button type="submit" class="btn-mega-search icon" aria-
label="Search" tabindex="-1">
```

```
<span class="sr-only">Search</span>
```

```
<span class="fa-global-search"></span>
```

```
</button>
```

```
<label for="mobile-search">
```

```
<span class="sr-only">&lt;</span>
```

```
<input id="toplevelcategory" name="toplevelcategory"
type="hidden" value="none">
```

```
<input id="query" name="query" type="hidden"
value="">
```

```
<input data-tabindex="1" class="form-control" data-
search-input="" id="mobile-search" name="keyword" type="text" data-igm-
search-input="" title="Search" autocomplete="off" data-target-result="#igm-
search-result" aria-controls="mega-results-overlay" aria-label="Search
Intel.com" placeholder="Search Intel.com">
```

```
</label>
```

```
<button type="button" id="cls-btn-advanced" class="btn-
mega-close fa-cancel-1 hide-flyout" aria-label="Clear Search Term" data-clear-
input="clear-input">
```

```

only">Close Search Panel</span>
                                </button>
                                <button type="button" id="advanced-btn" class="btn-
advance-filter fa-sliders hide-flyout" aria-label="Advanced Search Panel" data-
mega-advanced-search="advanced-search">
                                <span class="sr-only">Advanced Search</span>
                                </button>

                                </form>
                                <!--
                                'hidden' class is conditionally removed on load @ intel.search-
dropdown.js
                                -->
                                <div class="results-overlay mega-results-overlay search-quick-
links" aria-live="off" id="mega-results-overlay" data-
component="wa_skip_track">

                                <div class="mega-close-container">
                                <button aria-
label="Close search panel" class="btn-icon no-style close-result-toggle flyout-
close" data-mega-close="global-search">
                                close
                                </button>
                                </div>

                                <!-- Search Result Typeahead -->
                                <div class="results-typeahead collapse" id="igm-search-
result" data-igm-search-results="">
                                <div class="overlay-content">
                                <!--<h3>Top Results </h3>-->
                                <!-- added content-quick-search class -->
                                <div class="content-quick-search">
                                </div>
                                </div>
                                <div class="search-info">
                                <a href="javascript:void();" class="login-toggle" data-
activate-mega-control="signin">
                                Sign In</a> to access restricted content
                                </div>
                                </div>
                                <!-- Recent Searches: 1) display default search info if no search
terms is available -->
                                <!-- Recent Searches: 2) display recenter terms when available
and hide default search info -->
                                <div class="results-recent collapse" data-igm-search-
related="">
                                <div>
                                <!-- default search info -->
                                <div class="content-search-block content-search-info">
                                <h3>Using Intel.com Search</h3>

```

several ways.</p>

- <li>  
Brand Name:  
<strong>  
Core i9  
</strong>  
</li>  
<li>  
Document Number:  
<strong>  
123456  
</strong>  
</li>  
<li>  
Code Name:  
<strong>  
Alder Lake  
</strong>  
</li>  
<li>  
Special Operators:  
<strong>  
"Ice Lake", Ice AND Lake, Ice OR Lake, Ice\*  
</strong>  
</li>

</ul>

</div>

<!-- quick links is always visible on the recents overlay -->

<div class="content-search-block content-quick-links">

<h3>Quick Links</h3>

<p>You can also try the quick links below to see results  
for most popular searches.</p>

<ul>

<!--<li>

<a class="quick-link" rel="noopener noreferrer"  
href=https://ark.intel.com?

wapkw=quicklink:product-specifications>

Product Specifications

</a>

</li>-->

<li>

<a class="quick-link" rel="noopener noreferrer"  
href="https://www.intel.com/content/www/us/en/products/overview.html?  
wapkw=quicklink:products">

Product Information

</a>

</li>

<li><a class="quick-link" rel="noopener noreferrer"  
href="https://www.intel.com/content/www/us/en/support.html?  
wapkw=quicklink:support">

Support

</a>

```

        </li>
        <li>
            <a class="quick-link" rel="noopener noreferrer"
href="https://downloadcenter.intel.com?wapkw=quicklink:download-center">
                Drivers & Software
            </a>
        </li>
    </ul>
</div>
<!-- recent search terms -->
<div class="results-overlay results-recent results
component content-search-block content-recent" data-
component="wa_skip_track" data-component-id="1">
    <div class="overlay-content recent-searches-terms
hidden">
        <h3>Recent Searches</h3>
    </div>
</div>
<div class="search-info">
    <a href="javascript:void();" class="login-toggle" data-
activate-mega-control="signin">
        Sign In</a> to access restricted content
    </div>
</div>

    <div class="results-advanced collapse" data-igm-advanced-
search="">
        <div
class="overlay-content">
            <!-- default search info -->

            <div class="content-search-block content-search-info component" data-
component="wa_skip_track" data-component-id="1">
                <h3>Advanced Search</h3>
                <div class="controls-wrapper">
                    <div class="controls">
                        <div class="input-group select-control">
                            <select class="documentation-card-version-select"
name="find-results" id="find-results">
                                <option value="All of these terms"
selected="">All of these terms</option>
                                <option value="Any of these terms">Any of
these terms</option>

```

only</option> <option value="Exact term only">Exact term

</select>

<label class="select-label" for="find-results">Find results with</label>

</div>

<div class="input-group select-control">  
 <select class="selectAdvanced"  
name="show-results-from" id="show-results-from">  
 <option value="allResults"  
selected="" aria-label="all Results">  
 All Results  
 </option>  
 <option value="Products" aria-  
label="Products">  
 Product Information  
 </option>  
 <option value="Support">  
 Support  
 </option>  
 <option value="Downloads">  
 Drivers & Software  
 </option>  
 <option value="Developers">  
 Documentation & Resources  
 </option>  
 <!-- <option  
value="Solutions">Solutions</option>-->  
 <option value="Partners">  
 Partners  
 </option>  
 <option value="forums">  
 Communities  
 </option>  
 <option value="Corporate">  
 Corporate  
 </option>  
</select>

<label class="select-label" for="show-results-from">Show results from</label>

</div>

</div>

<div class="controls">



```
<h3>Only search in</h3>  
  
<div class="input-group" aria-label="Only Search In">  
    <label for="search_title">  
        <input name="search_title" id="search_title"  
type="checkbox"/>  
        Title</label>  
  
    <label for="search_description">  
        <input name="search_description"  
id="search_description" type="checkbox"/>  
        Description</label>  
  
    <label for="search_id">  
        <input name="search_id" id="search_id"  
type="checkbox"/>Content ID</label>  
    </div>  
  
    <button role="button" type="button" class="btn btn-  
primary" id="advanced-search-submit" data-wap="" data-wap-ref="search-  
button">  
        Search  
    </button>  
    </div>  
</div>  
</div>
```

[Sign in](#) to access restricted content.

```
        </div>
    </div>
</div>
</div>
</div>
```

```
<script type="text/javascript">
```

```
    var global_config = {
        "icsUrl": "https://supporttickets.intel.com/services/oauth2/authorize?
response_type=token&client_id=3MVG9QDx8IX8nP5Rh0X3B7gohGtUh8sjFQ8Tw_
U8sS9_PoVrupDFwZ_nwLcze2n64IGBbGchyUb7_9W8n8pAV&redirect_uri=https
%3A%2F%2Fwww.intel.com%2Fcontent%2Fwww%2Fus%2Fen%2Fsecure%2Fmy-
intel%2Ftoken.html",
        "ipsUrl": "https://premiersupport.intel.com/IP5/services/oauth2/authorize?
response_type=token&client_id=3MVG9xOCXq4ID1uEa5F2ICYAp6mmKvTMIKbMI
rsMKShY2oOqs1ETvPRjwmhoPivHd9_U53EzmiyYxn3nVpA9J&redirect_uri=https
%3A%2F%2Fwww.intel.com%2Fcontent%2Fwww%2Fus%2Fen%2Fsecure%2Fmy-
intel%2Ftoken.html"
    };
```

```
function inputSearch() {
    if (globalSearch.advancedSearchFlag == 'true') {
        var findResults = $("#find-results").val();
        var showResults = $("#show-results-from").val();
        var titleIsChecked = $("#search_title").is(":checked");
        var descriptionIsChecked = $("#search_description").is(":checked");
        var idIsChecked = $("#search_id").is(":checked");
        var searchInputValue = $("#mobile-search").val();

        if (findResults != 'All of these terms' || showResults != "allResults" ||
titleIsChecked || descriptionIsChecked || idIsChecked) {
            if (searchInputValue) {
                return advancedSearch();
            }
            else {
                return INTEL_TYPE_AHEAD.onSubmitHps('Search',
'/content/www/us/en', 'en_US');
            }
        }

        else {
            return INTEL_TYPE_AHEAD.onSubmitHps('Search', '/content/www/us/en',
'en_US');
        }
    }
    return INTEL_TYPE_AHEAD.onSubmitHps('Search', '/content/www/us/en',
'en_US');
}
```

```
var globalSearch = globalSearch || {};
globalSearch = {
```

```

sharePointSearchPromote:true,
searchProvider: 'coveo',
baseSearchQuery: 'localecode:"en_US" NOT generic1:"false" ',
langRootPath: '/content/www/us/en',
headingTxt: 'Best Match',
locale: 'en_US',
typeAheadUrl: 'http://search.intel.com/SearchLookup/DataProvider.ashx',
bestMatchUrl:
'https://platform.cloud.coveo.com/rest/search/v2/querySuggest',
searchRealm: 'Default',
bestMatchQ1: 'NAR',
bestMatchQ2: 'en',
bestMatchQ11: 'sptitle,description,url,thumbnailurl,reimaginerootlevel',
proglId: '',
useEMTTags: true,
defaultPage: 'search.html',
ighfToken: 'xx6e698e8b-65ad-446c-9030-666d0ec92d15',
searchHub: 'enterpriseSearch',
newNavRedesign: true,
advancedSearchFlag : 'true',
gtvLabels: {
    suggested: "",
    products: "Product Information",
    support: "Support",
    developers: "Developers",
    drivers: "Drivers",
    forums: "Forums",
    specifications: "Specifications",
    download: "",
    searchesRelatedTo: "",
    search: "Search Intel.com",
    inLabel: "in",
    searchSupport: "Search Intel® Support",
    intelcom: "",
    forLabel: "for",
    allResults: "All Results",
    show: "Show",
    results: "Results"
},
mobileResults: "5",
laptopResults: "10",
EDCProgramIdentifier: "false"
};
</script>
        </div>
        <!-- END MOBILE TOGGLE buttons -->
    </div>
</nav>
</header>
</div>

```



```
<div id="secondary-nav-1" class="component secondary-nav" data-  
component="subnavigation-breadcrumb" data-component-id="1">
```

```
    <div class="default-breadcrumb breadcrumb-bar-wrap-outer onlyTitle">  
        <nav role="" aria-label="Breadcrumbs" class="breadcrumb-bar-wrap  
initialized" style="width: 390px;">  
            <ol class="breadcrumb-bar scrolling-wrapper" aria-hidden="false">
```

```
                <!-- Breadcrumb for Support Templates -->
```

```
                <li class="menuitem breadcrumb-current-page active" aria-  
current="page">  
                    <div class="leaf-node current-page"><span>3.6. Error  
Detection</span></div>  
                </li>
```

```
            </ol>  
            <button title="previous item" class="nav-paddle nav-prev fa-angle-  
left" type="button" style="display: none;"></button>  
            <button title="next item" class="nav-paddle nav-next fa-angle-right  
for-displaying" type="button" style="display: inline-block; right:  
0px;"></button>  
        </nav>
```

</div>

</div>

```
<script type="text/javascript">
  intel = intel || {};
  intel.utils = intel.utils || {};
  intel.utils.breadcrumbSource = "onlyTitle";
  intel.utils.isDefaultSecondaryNavNeeded = "true";
  intel.utils.displayTitle = "3.6. Error Detection";
</script>
```

```

  <script type="text/javascript">
    var globalHeader = globalHeader || {};
    globalHeader = {
      currentPath:
"/content/www/us/en/docs/programmable/683865/current/error-detection",
      lanloc: "/us/en",
      lanLoc: "US/en",
      helpformurl: "",
      intelHeaderFooterVersion: "menu3",
      megaMenuPath: "/content/data/globalelements/US/en/globalnav4",
      globalBannerPath: "/content/data/globalelements/US/en/sitewide-
banner-placeholder",
      subMenuPath: "",
      isCHF:false,
      secureRedirectURL: "",
      excludeGlobalNav4: "false",
      allowSubNavigationBreadcrumb: "true",
      breadcrumbParentPagePath: "",
      myintelHeaderLinkAgs: "RDC Basic View,RDC BASIC View,RDC
Privileged Full,Intel Registration Center Access,IDZ-User,Basic Intel Registration
Role,Intel Developer Zone User,Khoros Customer Community Access,PSG
External Basic B2B Bundle,PSG External Customer Notification Subscriptions,PSG
External Digital Power Configuration Download,PSG External Material Declaration
Datasheet Download,PSG External Online Events Registration,PSG External
Quartus Web Edition license request,PSG External MAX PLUS II Baseline License
Request,PSG External Reference Design Request,PSG External IP Evaluation
```

Request,PSG External IP Early Access Request,PSG External Reference Designs downloads,PSG External MAX PLUS II software downloads,PSG External Download Center,PSG External University Program,PSG External Training,PSG External Self Service Licensing Center,IRC User Access~RDC Privileged Full,Sales-PRM-External-Customers Employee-User~RDC Basic View,RDC BASIC View,RDC Privileged Full,IDZ-User,Basic Intel Registration Role,Intel Developer Zone User,Khoros Customer Community Access,PSG External Basic B2B Bundle,PSG External Customer Notification Subscriptions,PSG External Digital Power Configuration Download,PSG External Material Declaration Datasheet Download,PSG External Online Events Registration,PSG External Quartus Web Edition license request,PSG External MAX PLUS II Baseline License Request,PSG External Reference Design Request,PSG External IP Evaluation Request,PSG External IP Early Access Request,PSG External Reference Designs downloads,PSG External MAX PLUS II software downloads,PSG External Download Center,PSG External University Program,PSG External Training,PSG External Self Service Licensing Center,IRC User Access",

```

    }
</script>

```

```

<script src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/
pages/nav.min.js" defer=""></script>
<script src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/
pages/secondaryNav.min.js" defer=""></script>
</div>

```

```

<section data-scroll-track="false">
  <div class="container">
    <div class="row">
      <div class="col-xs-12 pull-right persistent-cta-integration-globalNav"
id="alertMsg">
        <div id="alertSupport">
          <div class="browser_detect browser_detect_not_fixed"
id="browserdetectid" style="display:none;">
            <p>The browser version you are using is not recommended for
this site.<br>Please consider upgrading to the latest version of your browser by
clicking one of the following links.</p>
            <div class="browser_types">
              <ul>
                <li><a
href="https://support.apple.com/downloads/safari">Safari</a></li>
                <li><a
href="https://support.google.com/chrome/answer/95346?hl=en">Chrome</
a></li>
                <li><a
href="https://www.microsoft.com/en-us/edge">Edge</a></li>

```

```

        <li><a
href="https://www.mozilla.org/en-US/firefox/new/">Firefox</a></li>
    </ul>
</div>
</div>
</div>
</div>
</div>
</div>
</div>
</section>

```

```
<main id="primary-content">
```

```

<link rel="stylesheet"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/
udeDocumentationDetail.min.css" type="text/css">
<script src="/etc.clientlibs/clientlibs/granite/jquery.min.js"></script>
<script src="/etc.clientlibs/clientlibs/granite/utils.min.js"></script>
<script src="/etc.clientlibs/clientlibs/granite/jquery/granite.min.js"></script>
<script src="/etc.clientlibs/foundation/clientlibs/jquery.min.js"></script>
<script src="/etc.clientlibs/settings/wcm/clientlibs/ver/220720/foundation/
jquery.min.js"></script>
<script src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/
pages/udeDocumentationDetail.min.js"></script>

```

```

<div class="page-content">
    <div class="marquee">

```



```
<input type="hidden" name="ude-GroupId" id="DocumentationGroupId"
value="683865">
<input type="hidden" name="ude-bookId-node"
id="DocumentationPublicationId" value="666495">
<input type="hidden" name="ude-search"
id="DocumentationSearchUrlHiddenField"
value="/content/www/us/en/docs/programmable/683865/current">
```

```
<div id="marquee-1" class="component intel-ws theme-dark-default marquee-
documentation-detail force-background solid brand-primary" data-
component="marquee" data-component-id="1">
```

```
    <div class="container">
      <div class="row">
        <div class="col-xs-12">
          <p></p>
        </div>
      </div>
      <div class="row">
        <div class="col-xs-12 col-md-8">
          <h2 class="h1">Intel® MAX® 10 FPGA Configuration User
Guide</h2>
        </div>
```

```
        <div class="col-xs-12 col-md-4 cta-col bookmark-able">
```

```
          <a href="https://cdrdv2.intel.com/v1/dl/getContent/666495?
fileName=ug-683865-666495.pdf" class="btn btn-secondary">Download</a>
```

```
          <button data-wap="" data-wap_ref="bookmark-button"
class="bookmark-toggle btn btn-secondary"
onclick="toggleBookmark('bookmarkinput')" onload="onLoad()" style="display:
none;">Bookmark<span class="sr-only"></span>
            <input type="checkbox" id="bookmarkinput" tabindex="-1">
```

```
        </button>
```

```

        </div>
    </div>
    <div class="row collection-row hidden-info">
        <div class="col-xs-12 in-collections">
            <span class="collections-label"></span>
            <div class="collections">
            </div>
        </div>
    </div>
</div>
<div class="row info-row hidden-info">

    <div class="col-xs-12 col-md-8">

        <div class="info-col">

            <span class="label">ID</span>
            <span class="value">683865</span>

        </div>

        <div class="info-col">
            <span class="label">Date</span>
            <span class="value">5/26/2022</span>
        </div>

        <div class="marquee-search">
            <input type="hidden" name="currentPageVersion"
id="CurrentPageVersionHiddenField" value="current">
            <label for="marquee-search-select" class="marquee-search-select-
label">
                <span>Version</span>

                <label class="single_version">current</label>

            </label>
        </div>
        <div class="additional-info">
            <span>Public</span>
        </div>

    </div>

</div>
<div class="row showButtonRow">
    <div class="view-more-button">

        <button onclick="showMore()" class="show-more-show-less show-
more">View More<span class="fa-angle-down"></span></button>
        <button onclick="showLess()" class="show-more-show-less see-less
hidden-info">See Less<span class="fa-angle-up"></span></button>
    </div>
</div>

```

```
        </div>
    </div>
</div>
</div>
</div>

<div class="intel-ws ude ude-documentation-details">
    <div class="ude-documentation-details-container upe-spynav-content
container">
        <div class="ude-documentation-details-main row">
            <div class="toc tableOfContent">
```

```
<div id="tableOfContent-1" class="component ude-documentation-details-nav-
wrapper col-xs-12 col-lg-3 " data-component="tableOfContent" data-component-
id="1">
    <div class="ude-documentation-details-mobile-navigation">

        <div class="row ude-document-details-info hidden-lg hidden-xl">
```

```
<div id="internalUser" class="col-md-12 col-xs-12" style="display: none;">
    <div class="col-lg-10 col-xs-12">
```

```
    <p><span class="disclaimer">Visible to Intel only — </span>

        <span class="label">GUID:</span>
        <span class="info">sss1394534526396</span></p>
```

```
                <p><span class="label"></span> <span
class="info">Ixiasoft</span>
                </p>
```

```
        </div>
        <div class="col-lg-2 col-xs-12">
            <p class="cta-item">
                <a class="btn btn-tertiary"
href="/content/www/us/en/secure/design/internal/content-details.html?
DocID="><span>View Details</span></a>
            </p>
        </div>
    </div>
```

```
        </div>

        <div class="filter-dropdown-search-wrapper component disabled" data-
component="wa_skip_track" data-component-id="1">
            <label for="documentation-details-search" class="filter-dropdown-
search-label">
                <input class="filter-dropdown-search" type="search"
id="documentation-details-search" aria-label="Search for filter" size="10"
placeholder="Search this document">
                <button class="btn-cancel-search" data-close="documentation-
details-search"><span class="sr-only">Close Filter Modal</span><span
class="fa-cancel-1"></span></button>
            </label>
        </div>
        <a href="#table-of-contents" class="btn btn-secondary hub-toggle
">Document Table of Contents</a>
        <div id="table-of-contents" class="hub-content off-screen">
            <div class="hub-content-header">
                <div class="container">
                    <a class="back-hub-link" href="#">Document Table of
Contents</a>
                </div>
            </div>
        </div>
        <div class="hub-content-wrap">
```

```
            <a
href="/content/www/us/en/docs/programmable/683865/current/fpga-
configuration-overview.html#dropdown-1-0" class="hub-toggle"><span
class="hub-toggle-content">1. Intel® MAX® 10 FPGA Configuration
Overview</span></a>
```

```
            <a
href="/content/www/us/en/docs/programmable/683865/current/fpga-
configuration-schemes-and-features.html#dropdown-1-1" class="hub-
toggle"><span class="hub-toggle-content">2. Intel® MAX® 10 FPGA
Configuration Schemes and Features</span></a>
```

[<a href="/content/www/us/en/docs/programmable/683865/current/fpga-configuration-design-guidelines.html#dropdown-1-2" class="hub-toggle"><span class="hub-toggle-content">3. Intel® MAX® 10 FPGA Configuration Design Guidelines</span></a>](/content/www/us/en/docs/programmable/683865/current/fpga-configuration-design-guidelines.html#dropdown-1-2)

[<a href="/content/www/us/en/docs/programmable/683865/current/fpga-configuration-ip-core-implementation.html#dropdown-1-3" class="hub-toggle"><span class="hub-toggle-content">4. Intel® MAX® 10 FPGA Configuration IP Core Implementation Guides</span></a>](/content/www/us/en/docs/programmable/683865/current/fpga-configuration-ip-core-implementation.html#dropdown-1-3)

[<a href="/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-references.html#dropdown-1-4" class="hub-toggle"><span class="hub-toggle-content">5. Dual Configuration Intel® FPGA IP Core References</span></a>](/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-references.html#dropdown-1-4)

[<a href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-core-references.html#dropdown-1-5" class="hub-toggle"><span class="hub-toggle-content">6. Unique Chip ID Intel® FPGA IP Core References</span></a>](/content/www/us/en/docs/programmable/683865/current/unique-chip-id-core-references.html#dropdown-1-5)

[<a href="/content/www/us/en/docs/programmable/683865/current/document-revision-history-for-the-fpga.html#dropdown-1-6" class="hub-toggle"><span class="hub-toggle-content">7. Document Revision History for the Intel® MAX® 10 FPGA Configuration User Guide</span></a>](/content/www/us/en/docs/programmable/683865/current/document-revision-history-for-the-fpga.html#dropdown-1-6)

</div>  
</div>

<div id="dropdown-1-1" class="hub-content off-screen">  
 <div class="hub-content-header">  
 <div class="container">  
 <a class="back-hub-link" href="/content/www/us/en/docs/programmable/683865/current/fpga-configuration-schemes-and-features.html">2. Intel® MAX® 10 FPGA Configuration Schemes and Features</a>  
 </div>  
 </div>  
</div>  
<div class="hub-content-wrap">

<a href="/content/www/us/en/docs/programmable/683865/current/configuration-schemes.html#dropdown-1-1-0" class="hub-toggle "><span class="hub-toggle-content">2.1. Configuration Schemes</span></a>

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
features.html#dropdown-1-1-1" class="hub-toggle "><span class="hub-toggle-
content">2.2. Configuration Features</span></a>

```

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
details.html#dropdown-1-1-2" class="hub-toggle "><span class="hub-toggle-
content">2.3. Configuration Details</span></a>

```

```

    </div>
</div>

```

```

        <div id="dropdown-1-1-0" class="hub-content off-screen">
            <div class="hub-content-header">
                <div class="container">
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/configuration-
schemes.html">2.1. Configuration Schemes</a>
                </div>
            </div>
            <div class="hub-content-wrap">

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-
configuration.html#dropdown-1-1-0-0" class="hub-toggle"><span class="hub-
toggle-content">2.1.1. JTAG Configuration</span></a>

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/internal-
configuration.html#dropdown-1-1-0-1" class="hub-toggle"><span class="hub-
toggle-content">2.1.2. Internal Configuration</span></a>

```

```

            </div>
        </div>

```

```

        <div id="dropdown-1-1-0-0" class="hub-content off-
screen">
            <div class="hub-content-header">
                <div class="container">
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/jtag-
configuration.html">2.1.1. JTAG Configuration</a>
                </div>
            </div>
            <div class="hub-content-wrap">

```

```
                <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-
pins.html#dropdown-1-1-0-0-0" class="hub-toggle"><span class="hub-toggle-
content">2.1.1.1. JTAG Pins</span></a>
```

```
            </div>
        </div>
```

```
screen">
        <div id="dropdown-1-1-0-1" class="hub-content off-
```

```
            <div class="hub-content-header">
                <div class="container">
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/internal-
configuration.html">2.1.2. Internal Configuration</a>
                </div>
            </div>
        <div class="hub-content-wrap">
```

```
                <a
href="/content/www/us/en/docs/programmable/683865/current/internal-
configuration-modes.html#dropdown-1-1-0-1-0" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.1. Internal Configuration Modes</span></a>
```

```
                <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory.html#dropdown-1-1-0-1-1" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.2. Configuration Flash Memory</span></a>
```

```
                <a
href="/content/www/us/en/docs/programmable/683865/current/in-system-
programming.html#dropdown-1-1-0-1-2" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.3. In-System Programming</span></a>
```

```
                <a
href="/content/www/us/en/docs/programmable/683865/current/initialization-
configuration-bits.html#dropdown-1-1-0-1-3" class="hub-toggle"><span
class="hub-toggle-content">2.1.2.4. Initialization Configuration
Bits</span></a>
```





<a  
href="/content/www/us/en/docs/programmable/683865/current/isp-clamp.html#dropdown-1-1-0-1-2--0" class="hub-toggle"><span class="hub-toggle-content">2.1.2.3.1. ISP Clamp</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/real-time-isp.html#dropdown-1-1-0-1-2--1" class="hub-toggle"><span class="hub-toggle-content">2.1.2.3.2. Real-Time ISP</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/isp-and-real-time-isp-instructions.html#dropdown-1-1-0-1-2--2" class="hub-toggle"><span class="hub-toggle-content">2.1.2.3.3. ISP and Real-Time ISP Instructions</span></a>

</div>  
</div>

<div id="dropdown-1-1-1" class="hub-content off-screen">  
  <div class="hub-content-header">  
    <div class="container">  
      <a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/configuration-features.html">2.2. Configuration Features</a>  
    </div>  
  </div>  
  <div class="hub-content-wrap">

<a  
href="/content/www/us/en/docs/programmable/683865/current/remote-system-upgrade.html#dropdown-1-1-1-0" class="hub-toggle"><span class="hub-toggle-content">2.2.1. Remote System Upgrade</span></a>

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
design-security.html#dropdown-1-1-1-1" class="hub-toggle"><span class="hub-
toggle-content">2.2.2. Configuration Design Security</span></a>

```

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/seu-mitigation-
and-configuration-error.html#dropdown-1-1-1-2" class="hub-toggle"><span
class="hub-toggle-content">2.2.3. SEU Mitigation and Configuration Error
Detection</span></a>

```

```

        <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
data-compression.html#dropdown-1-1-1-3" class="hub-toggle"><span
class="hub-toggle-content">2.2.4. Configuration Data
Compression</span></a>

```

```

    </div>
</div>

```

```

        <div id="dropdown-1-1-1-0" class="hub-content off-
screen">
            <div class="hub-content-header">
                <div class="container">
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade.html">2.2.1. Remote System Upgrade</a>
                </div>
            </div>
            <div class="hub-content-wrap">

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade-flow.html#dropdown-1-1-1-0-0" class="hub-toggle"><span class="hub-
toggle-content">2.2.1.1. Remote System Upgrade Flow</span></a>

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade-circuitry.html#dropdown-1-1-1-0-1" class="hub-toggle"><span
class="hub-toggle-content">2.2.1.2. Remote System Upgrade
Circuitry</span></a>

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/user-watchdog-
timer.html#dropdown-1-1-1-0-2" class="hub-toggle"><span class="hub-toggle-
content">2.2.1.3. User Watchdog Timer</span></a>

```

[<a href="/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-79122.html#dropdown-1-1-1-0-3" class="hub-toggle"><span class="hub-toggle-content">2.2.1.4. Dual Configuration Intel® FPGA IP Core</span></a>](/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-79122.html#dropdown-1-1-1-0-3)

</div>  
</div>

<div id="dropdown-1-1-1-0-1" class="hub-content off-screen">

<div class="hub-content-header">  
<div class="container">  
<a class="back-hub-link" href="/content/www/us/en/docs/programmable/683865/current/remote-system-upgrade-circuitry.html">2.2.1.2. Remote System Upgrade Circuitry</a>  
</div>  
</div>  
<div class="hub-content-wrap">

<a href="/content/www/us/en/docs/programmable/683865/current/remote-system-upgrade-circuitry-signals.html#dropdown-1-1-1-0-1--0" class="hub-toggle"><span class="hub-toggle-content">2.2.1.2.1. Remote System Upgrade Circuitry Signals</span></a>

<a href="/content/www/us/en/docs/programmable/683865/current/remote-system-upgrade-circuitry-input.html#dropdown-1-1-1-0-1--1" class="hub-toggle"><span class="hub-toggle-content">2.2.1.2.2. Remote System Upgrade Circuitry Input Control</span></a>

<a href="/content/www/us/en/docs/programmable/683865/current/remote-system-upgrade-input-register.html#dropdown-1-1-1-0-1--2" class="hub-toggle"><span class="hub-toggle-content">2.2.1.2.3. Remote System Upgrade Input Register</span></a>

<a href="/content/www/us/en/docs/programmable/683865/current/remote-system-upgrade-status-registers.html#dropdown-1-1-1-0-1--3" class="hub-toggle"><span class="hub-toggle-content">2.2.1.2.4. Remote System Upgrade Status Registers</span></a>

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/master-state-
machine.html#dropdown-1-1-1-0-1--4" class="hub-toggle"><span class="hub-
toggle-content">2.2.1.2.5. Master State Machine</span></a>

```

```

            </div>
        </div>

```

```

        <div id="dropdown-1-1-1-1" class="hub-content off-
screen">

```

```

            <div class="hub-content-header">
                <div class="container">
                    <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/configuration-
design-security.html">2.2.2. Configuration Design Security</a>
                </div>
            </div>
            <div class="hub-content-wrap">

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/aes-encryption-
protection.html#dropdown-1-1-1-1-0" class="hub-toggle"><span class="hub-
toggle-content">2.2.2.1. AES Encryption Protection</span></a>

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/unique-chip-
id.html#dropdown-1-1-1-1-1" class="hub-toggle"><span class="hub-toggle-
content">2.2.2.2. Unique Chip ID</span></a>

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-
mode.html#dropdown-1-1-1-1-2" class="hub-toggle"><span class="hub-toggle-
content">2.2.2.3. JTAG Secure Mode</span></a>

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/verify-
protect.html#dropdown-1-1-1-1-3" class="hub-toggle"><span class="hub-
toggle-content">2.2.2.4. Verify Protect</span></a>

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-instruction-
availability.html#dropdown-1-1-1-1-4" class="hub-toggle"><span class="hub-
toggle-content">2.2.2.5. JTAG Instruction Availability</span></a>

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory-permissions.html#dropdown-1-1-1-1-5" class="hub-
toggle"><span class="hub-toggle-content">2.2.2.6. Configuration Flash Memory
Permissions</span></a>

```

```

            </div>
        </div>

```

```

content off-screen">
                <div id="dropdown-1-1-1-1-0" class="hub-
                <div class="hub-content-header">
                    <div class="container">
                        <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/aes-encryption-
protection.html">2.2.2.1. AES Encryption Protection</a>
                    </div>
                </div>
                <div class="hub-content-wrap">

```

```

                    <a
href="/content/www/us/en/docs/programmable/683865/current/encryption-and-
decryption.html#dropdown-1-1-1-1-0--0" class="hub-toggle"><span class="hub-
toggle-content">2.2.2.1.1. Encryption and Decryption</span></a>

```

```

                </div>
            </div>

```

```

content off-screen">
                <div id="dropdown-1-1-1-1-1" class="hub-
                <div class="hub-content-header">
                    <div class="container">
                        <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/unique-chip-
id.html">2.2.2.2. Unique Chip ID</a>
                    </div>
                </div>
                <div class="hub-content-wrap">

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-
core-80250.html#dropdown-1-1-1-1-1--0" class="hub-toggle"><span
class="hub-toggle-content">2.2.2.2.1. Unique Chip ID Intel® FPGA IP
Core</span></a>

```

```

        </div>
</div>

```

```

        <div id="dropdown-1-1-1-1-2" class="hub-
content off-screen">

```

```

                <div class="hub-content-header">
                <div class="container">
                <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-
mode.html">2.2.2.3. JTAG Secure Mode</a>
                </div>
                </div>
                <div class="hub-content-wrap">

```

```

                        <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-
mode-instructions.html#dropdown-1-1-1-1-2--0" class="hub-toggle"><span
class="hub-toggle-content">2.2.2.3.1. JTAG Secure Mode
Instructions</span></a>

```

```

                        </div>
                </div>

```

```

        <div id="dropdown-1-1-1-1-5" class="hub-
content off-screen">

```

```

                <div class="hub-content-header">
                <div class="container">
                <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory-permissions.html">2.2.2.6. Configuration Flash Memory
Permissions</a>
                </div>
                </div>
                <div class="hub-content-wrap">

```

```

                                <a
href="/content/www/us/en/docs/programmable/683865/current/flash-region-
access-control-and-immutability.html#dropdown-1-1-1-1-5--0" class="hub-
toggle"><span class="hub-toggle-content">2.2.2.6.1. Flash Region Access
Control and Immutability</span></a>

```

```

                                </div>
                                </div>

```

```

                                <div id="dropdown-1-1-1-2" class="hub-content off-
screen">

```

```

                                    <div class="hub-content-header">
                                        <div class="container">
                                            <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/seu-mitigation-
and-configuration-error.html">2.2.3. SEU Mitigation and Configuration Error
Detection</a>

```

```

                                            </div>
                                        </div>
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```

```

                                            <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
error-detection.html#dropdown-1-1-1-2-0" class="hub-toggle"><span
class="hub-toggle-content">2.2.3.1. Configuration Error Detection</span></a>

```

```

                                            <a
href="/content/www/us/en/docs/programmable/683865/current/user-mode-error-
detection.html#dropdown-1-1-1-2-1" class="hub-toggle"><span class="hub-
toggle-content">2.2.3.2. User Mode Error Detection</span></a>

```

```

                                            <a
href="/content/www/us/en/docs/programmable/683865/current/error-detection-
timing.html#dropdown-1-1-1-2-2" class="hub-toggle"><span class="hub-toggle-
content">2.2.3.3. Error Detection Timing</span></a>

```

```

                                            <a
href="/content/www/us/en/docs/programmable/683865/current/recovering-from-
crc-errors.html#dropdown-1-1-1-2-3" class="hub-toggle"><span class="hub-
toggle-content">2.2.3.4. Recovering from CRC Errors</span></a>

```

```

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```

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href="/content/www/us/en/docs/programmable/683865/current/user-mode-error-
detection.html">2.2.3.2. User Mode Error Detection</a>
        </div>
    </div>
    <div class="hub-content-wrap">

        <a
href="/content/www/us/en/docs/programmable/683865/current/error-detection-
block.html#dropdown-1-1-1-2-1--0" class="hub-toggle"><span class="hub-
toggle-content">2.2.3.2.1. Error Detection Block</span></a>

        <a
href="/content/www/us/en/docs/programmable/683865/current/change-edreg-
jtag-instruction.html#dropdown-1-1-1-2-1--1" class="hub-toggle"><span
class="hub-toggle-content">2.2.3.2.2. CHANGE_EDREG JTAG
Instruction</span></a>

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href="/content/www/us/en/docs/programmable/683865/current/error-detection-
timing.html">2.2.3.3. Error Detection Timing</a>
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    </div>
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href="/content/www/us/en/docs/programmable/683865/current/error-detection-
frequency.html#dropdown-1-1-1-2-2--0" class="hub-toggle"><span class="hub-
toggle-content">2.2.3.3.1. Error Detection Frequency</span></a>

```



```

                <a
href="/content/www/us/en/docs/programmable/683865/current/cyclic-
redundancy-check-calculation-timing.html#dropdown-1-1-1-2-2--1" class="hub-
toggle"><span class="hub-toggle-content">2.2.3.3.2. Cyclic Redundancy Check
Calculation Timing</span></a>

```

```

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href="/content/www/us/en/docs/programmable/683865/current/configuration-
details.html">2.3. Configuration Details</a>
                        </div>
                    </div>
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```

```

                    <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
sequence.html#dropdown-1-1-2-0" class="hub-toggle"><span class="hub-
toggle-content">2.3.1. Configuration Sequence</span></a>

```

```

                    <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
pins.html#dropdown-1-1-2-1" class="hub-toggle"><span class="hub-toggle-
content">2.3.2. Intel® MAX® 10 Configuration Pins</span></a>

```

```

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            </div>

```

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```

```
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href="/content/www/us/en/docs/programmable/683865/current/configuration-
sequence.html">2.3.1. Configuration Sequence</a>
```

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```

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        </div>
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```

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href="/content/www/us/en/docs/programmable/683865/current/power-
up.html#dropdown-1-1-2-0-0" class="hub-toggle"><span class="hub-toggle-
content">2.3.1.1. Power-up</span></a>
```

```
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```

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href="/content/www/us/en/docs/programmable/683865/current/configuration.ht
ml#dropdown-1-1-2-0-1" class="hub-toggle"><span class="hub-toggle-
content">2.3.1.2. Configuration</span></a>
```

```
            <a
```

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href="/content/www/us/en/docs/programmable/683865/current/configuration-
error-handling.html#dropdown-1-1-2-0-2" class="hub-toggle"><span
class="hub-toggle-content">2.3.1.3. Configuration Error Handling</span></a>
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href="/content/www/us/en/docs/programmable/683865/current/initialization.html
#dropdown-1-1-2-0-3" class="hub-toggle"><span class="hub-toggle-
content">2.3.1.4. Initialization</span></a>
```

```
            <a
```

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href="/content/www/us/en/docs/programmable/683865/current/user-
mode.html#dropdown-1-1-2-0-4" class="hub-toggle"><span class="hub-toggle-
content">2.3.1.5. User Mode</span></a>
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content off-screen">
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```
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```

```
href="/content/www/us/en/docs/programmable/683865/current/power-
up.html">2.3.1.1. Power-up</a>
```

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            </div>
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        </div>
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[<a href="/content/www/us/en/docs/programmable/683865/current/por-monitored-voltage-rails-for-single.html#dropdown-1-1-2-0-0--0" class="hub-toggle"><span class="hub-toggle-content">2.3.1.1.1. POR Monitored Voltage Rails for Single-supply and Dual-supply Intel® MAX® 10 Devices</span></a>](/content/www/us/en/docs/programmable/683865/current/por-monitored-voltage-rails-for-single.html#dropdown-1-1-2-0-0--0)

[<a href="/content/www/us/en/docs/programmable/683865/current/monitored-power-supplies-ramp-time-requirement.html#dropdown-1-1-2-0-0--1" class="hub-toggle"><span class="hub-toggle-content">2.3.1.1.2. Monitored Power Supplies Ramp Time Requirement for Intel® MAX® 10 Devices</span></a>](/content/www/us/en/docs/programmable/683865/current/monitored-power-supplies-ramp-time-requirement.html#dropdown-1-1-2-0-0--1)

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 <a class="back-hub-link" href="/content/www/us/en/docs/programmable/683865/current/fpga-configuration-design-guidelines.html">3. Intel® MAX® 10 FPGA Configuration Design Guidelines</a>  
 </div>  
 </div>  
</div class="hub-content-wrap">

<a href="/content/www/us/en/docs/programmable/683865/current/dual-purpose-

configuration-pins.html#dropdown-1-2-0" class="hub-toggle "><span class="hub-toggle-content">3.1. Dual-Purpose Configuration Pins</span></a>

<a href="/content/www/us/en/docs/programmable/683865/current/configuring-devices-using-jtag-configuration.html#dropdown-1-2-1" class="hub-toggle "><span class="hub-toggle-content">3.2. Configuring Intel® MAX® 10 Devices using JTAG Configuration</span></a>

<a href="/content/www/us/en/docs/programmable/683865/current/configuring-devices-using-internal-.html#dropdown-1-2-2" class="hub-toggle "><span class="hub-toggle-content">3.3. Configuring Intel® MAX® 10 Devices using Internal Configuration</span></a>

<a href="/content/www/us/en/docs/programmable/683865/current/implementing-isp-clamp-in-software.html#dropdown-1-2-3" class="hub-toggle "><span class="hub-toggle-content">3.4. Implementing ISP Clamp in Intel® Quartus® Prime Software</span></a>

<a href="/content/www/us/en/docs/programmable/683865/current/accessing-remote-system-upgrade-through.html#dropdown-1-2-4" class="hub-toggle "><span class="hub-toggle-content">3.5. Accessing Remote System Upgrade through User Logic</span></a>

<a href="/content/www/us/en/docs/programmable/683865/current/error-detection.html#dropdown-1-2-5" class="hub-toggle "><span class="hub-toggle-content">3.6. Error Detection</span></a>

<a href="/content/www/us/en/docs/programmable/683865/current/enabling-data-compression.html#dropdown-1-2-6" class="hub-toggle "><span class="hub-toggle-content">3.7. Enabling Data Compression</span></a>

<a href="/content/www/us/en/docs/programmable/683865/current/aes-encryption.html#dropdown-1-2-7" class="hub-toggle "><span class="hub-toggle-content">3.8. AES Encryption</span></a>

<a href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-design-example.html#dropdown-1-2-8" class="hub-toggle "><span class="hub-toggle-content">3.9. Intel® MAX® 10 JTAG Secure Design Example</span></a>

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href="/content/www/us/en/docs/programmable/683865/current/dual-purpose-
configuration-pins.html">3.1. Dual-Purpose Configuration Pins</a>
            </div>
        </div>
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```

```

            <a
href="/content/www/us/en/docs/programmable/683865/current/guidelines-dual-
purpose-configuration-pin.html#dropdown-1-2-0-0" class="hub-toggle"><span
class="hub-toggle-content">3.1.1. Guidelines: Dual-Purpose Configuration
Pin</span></a>

```

```

            <a
href="/content/www/us/en/docs/programmable/683865/current/enabling-dual-
purpose-pin.html#dropdown-1-2-0-1" class="hub-toggle"><span class="hub-
toggle-content">3.1.2. Enabling Dual-Purpose Pin</span></a>

```

```

        </div>
    </div>

```

```

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screen">

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```

            <div class="hub-content-header">
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href="/content/www/us/en/docs/programmable/683865/current/guidelines-dual-
purpose-configuration-pin.html">3.1.1. Guidelines: Dual-Purpose Configuration
Pin</a>
                </div>
            </div>
            <div class="hub-content-wrap">

```

```

                <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-pin-sharing-
behavior.html#dropdown-1-2-0-0-0" class="hub-toggle"><span class="hub-
toggle-content">3.1.1.1. JTAG Pin Sharing Behavior</span></a>

```

```

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        </div>

```

```

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href="/content/www/us/en/docs/programmable/683865/current/configuring-
devices-using-jtag-configuration.html">3.2. Configuring Intel® MAX® 10 Devices
using JTAG Configuration</a>
                </div>
            </div>
            <div class="hub-content-wrap">

                <a
href="/content/www/us/en/docs/programmable/683865/current/auto-generating-
configuration-files.html#dropdown-1-2-1-0" class="hub-toggle"><span
class="hub-toggle-content">3.2.1. Auto-Generating Configuration Files for Third-
Party Programming Tools</span></a>

                <a
href="/content/www/us/en/docs/programmable/683865/current/generating-third-
party-programming-files%20generating-third-party-programming-files
%20generating-third-party-programming-files.html#dropdown-1-2-1-1"
class="hub-toggle"><span class="hub-toggle-content">Generating Third-Party
Programming Files using Intel® Quartus® Prime Programmer</span></a>

                <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-
configuration-setup.html#dropdown-1-2-1-2" class="hub-toggle"><span
class="hub-toggle-content">3.2.3. JTAG Configuration Setup</span></a>

                <a
href="/content/www/us/en/docs/programmable/683865/current/icb-settings-in-
jtag-configuration.html#dropdown-1-2-1-3" class="hub-toggle"><span
class="hub-toggle-content">3.2.4. ICB Settings in JTAG
Configuration</span></a>

            </div>
        </div>

```

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    <div class="container">
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href="/content/www/us/en/docs/programmable/683865/current/configuring-
devices-using-internal-.html">3.3. Configuring Intel® MAX® 10 Devices using
Internal Configuration</a>
    </div>
  </div>
</div>
<div class="hub-content-wrap">
```

```
  <a
href="/content/www/us/en/docs/programmable/683865/current/selecting-
internal-configuration-modes.html#dropdown-1-2-2-0" class="hub-
toggle"><span class="hub-toggle-content">3.3.1. Selecting Internal
Configuration Modes</span></a>
```

```
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href="/content/www/us/en/docs/programmable/683865/current/pof-and-icb-
settings.html#dropdown-1-2-2-1" class="hub-toggle"><span class="hub-toggle-
content">3.3.2. .pof and ICB Settings</span></a>
```

```
  <a
href="/content/www/us/en/docs/programmable/683865/current/programming-
pof-into-internal-flash.html#dropdown-1-2-2-2" class="hub-toggle"><span
class="hub-toggle-content">3.3.3. Programming .pof into Internal
Flash</span></a>
```

```
</div>
</div>
```

```
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screen">
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```
  <div class="hub-content-header">
    <div class="container">
```

[3.3.2. .pof and ICB Settings](/content/www/us/en/docs/programmable/683865/current/pof-and-icb-settings.html)

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</div>

<div class="hub-content-wrap">

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href="/content/www/us/en/docs/programmable/683865/current/auto-generated-pof.html#dropdown-1-2-2-1-0" class="hub-toggle"><span class="hub-toggle-content">3.3.2.1. Auto-Generated .pof</span></a>

<a

href="/content/www/us/en/docs/programmable/683865/current/generating-pof-using-convert-programming.html#dropdown-1-2-2-1-1" class="hub-toggle"><span class="hub-toggle-content">3.3.2.2. Generating .pof using Convert Programming Files</span></a>

<a

href="/content/www/us/en/docs/programmable/683865/current/generating-third-party-programming-files%20generating-third-party-programming-files%20generating-third-party-programming-files-01.html#dropdown-1-2-2-1-2" class="hub-toggle"><span class="hub-toggle-content">Generating Third-Party Programming Files using Intel® Quartus® Prime Programmer</span></a>

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</div>

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<div class="container">

<a class="back-hub-link"

href="/content/www/us/en/docs/programmable/683865/current/implementing-



isp-clamp-in-software.html">3.4. Implementing ISP Clamp in Intel® Quartus® Prime Software</a>

</div>

</div>

<div class="hub-content-wrap">

<a

href="/content/www/us/en/docs/programmable/683865/current/creating-ips-file.html#dropdown-1-2-3-0" class="hub-toggle"><span class="hub-toggle-content">3.4.1. Creating IPS File</span></a>

<a

href="/content/www/us/en/docs/programmable/683865/current/executing-ips-file.html#dropdown-1-2-3-1" class="hub-toggle"><span class="hub-toggle-content">3.4.2. Executing IPS File</span></a>

</div>

</div>

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<div class="container active-section">

<a class="back-hub-link"

href="/content/www/us/en/docs/programmable/683865/current/error-detection.html">3.6. Error Detection</a>

</div>

</div>

<div class="hub-content-wrap">

<a

href="/content/www/us/en/docs/programmable/683865/current/verifying-error-detection-functionality.html#dropdown-1-2-5-0" class="hub-toggle"><span class="hub-toggle-content">3.6.1. Verifying Error Detection Functionality</span></a>

<a

href="/content/www/us/en/docs/programmable/683865/current/enabling-error-

```
detection.html#dropdown-1-2-5-1" class="hub-toggle"><span class="hub-  
toggle-content">3.6.2. Enabling Error Detection</span></a>
```

```
    <a  
href="/content/www/us/en/docs/programmable/683865/current/accessing-error-  
detection-block-through.html#dropdown-1-2-5-2" class="hub-toggle"><span  
class="hub-toggle-content">3.6.3. Accessing Error Detection Block Through User  
Logic</span></a>
```

```
    </div>  
</div>
```

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          <a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/enabling-data-  
compression.html">3.7. Enabling Data Compression</a>  
        </div>  
      </div>  
      <div class="hub-content-wrap">
```

```
        <a  
href="/content/www/us/en/docs/programmable/683865/current/enabling-  
compression-before-design-.html#dropdown-1-2-6-0" class="hub-toggle"><span  
class="hub-toggle-content">3.7.1. Enabling Compression Before Design  
Compilation</span></a>
```

```
        <a  
href="/content/www/us/en/docs/programmable/683865/current/enabling-  
compression-after-design-c.html#dropdown-1-2-6-1" class="hub-toggle"><span  
class="hub-toggle-content">3.7.2. Enabling Compression After Design  
Compilation</span></a>
```

```
      </div>  
</div>
```

```

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    <div class="container">
      <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/aes-
encryption.html">3.8. AES Encryption</a>
    </div>
  </div>
  <div class="hub-content-wrap">

    <a
href="/content/www/us/en/docs/programmable/683865/current/generating-ekp-
file-and-encrypt-configuration.html#dropdown-1-2-7-0" class="hub-
toggle"><span class="hub-toggle-content">3.8.1. Generating .ekp File and
Encrypt Configuration File</span></a>

    <a
href="/content/www/us/en/docs/programmable/683865/current/generating-jam-
jbc-svf-file-from-ekp-file.html#dropdown-1-2-7-1" class="hub-toggle"><span
class="hub-toggle-content">3.8.2. Generating .jam/.jbc/.svf file from .ekp
file</span></a>

    <a
href="/content/www/us/en/docs/programmable/683865/current/programming-
ekp-file-and-encrypted-pof-file.html#dropdown-1-2-7-2" class="hub-
toggle"><span class="hub-toggle-content">3.8.3. Programming .ekp File and
Encrypted POF File</span></a>

    <a
href="/content/www/us/en/docs/programmable/683865/current/encryption-in-
internal-configuration.html#dropdown-1-2-7-3" class="hub-toggle"><span
class="hub-toggle-content">3.8.4. Encryption in Internal
Configuration</span></a>

  </div>
</div>

```

```

screen">
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href="/content/www/us/en/docs/programmable/683865/current/programming-
ekp-file-and-encrypted-pof-file.html">3.8.3. Programming .ekp File and
Encrypted POF File</a>
        </div>
    </div>
    <div class="hub-content-wrap">

        <a
href="/content/www/us/en/docs/programmable/683865/current/programming-
ekp-file-and-encrypted-pof.html#dropdown-1-2-7-2-0" class="hub-
toggle"><span class="hub-toggle-content">3.8.3.1. Programming .ekp File and
Encrypted .pof Separately</span></a>

        <a
href="/content/www/us/en/docs/programmable/683865/current/integrate-the-
ekp-into-pof-programming.html#dropdown-1-2-7-2-1" class="hub-
toggle"><span class="hub-toggle-content">3.8.3.2. Integrate the .ekp into .pof
Programming</span></a>

    </div>
</div>

```

```

<div id="dropdown-1-2-8" class="hub-content off-screen">
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        <div class="container">
            <a class="back-hub-link"
href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-
design-example.html">3.9. Intel® MAX® 10 JTAG Secure Design Example</a>
        </div>
    </div>
</div>

```

<div class="hub-content-wrap">

<a  
href="/content/www/us/en/docs/programmable/683865/current/internal-and-external-jtag-interfaces.html#dropdown-1-2-8-0" class="hub-toggle"><span class="hub-toggle-content">3.9.1. Internal and External JTAG Interfaces</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/jtag-wysiwyg-atom-for-jtag-control-block.html#dropdown-1-2-8-1" class="hub-toggle"><span class="hub-toggle-content">3.9.2. JTAG WYSIWYG Atom for JTAG Control Block Access Using Internal JTAG Interface</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/executing-lock-and-unlock-jtag-instructions.html#dropdown-1-2-8-2" class="hub-toggle"><span class="hub-toggle-content">3.9.3. Executing LOCK and UNLOCK JTAG Instructions</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/verifying-the-jtag-secure-mode.html#dropdown-1-2-8-3" class="hub-toggle"><span class="hub-toggle-content">3.9.4. Verifying the JTAG Secure Mode</span></a>

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<a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/fpga-

configuration-ip-core-implementation.html">4. Intel® MAX® 10 FPGA  
Configuration IP Core Implementation Guides</a>

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<div class="hub-content-wrap">

<a

href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-core-27700.html#dropdown-1-3-0" class="hub-toggle "><span class="hub-toggle-content">4.1. Unique Chip ID Intel® FPGA IP Core</span></a>

<a

href="/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-26199.html#dropdown-1-3-1" class="hub-toggle "><span class="hub-toggle-content">4.2. Dual Configuration Intel® FPGA IP Core</span></a>

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href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-core-27700.html">4.1. Unique Chip ID Intel® FPGA IP Core</a>

</div>

</div>

<div class="hub-content-wrap">

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href="/content/www/us/en/docs/programmable/683865/current/instantiating-the-unique-chip-id-core.html#dropdown-1-3-0-0" class="hub-toggle"><span class="hub-toggle-content">4.1.1. Instantiating the Unique Chip ID Intel® FPGA IP Core</span></a>

<a

href="/content/www/us/en/docs/programmable/683865/current/resetting-the-unique-chip-id-core.html#dropdown-1-3-0-1" class="hub-toggle"><span class="hub-toggle-content">4.1.2. Resetting the Unique Chip ID Intel® FPGA IP Core</span></a>

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configuration-core-26199.html">4.2. Dual Configuration Intel® FPGA IP
Core</a>
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  </div>
</div>
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href="/content/www/us/en/docs/programmable/683865/current/instantiating-the-
dual-configuration-core.html#dropdown-1-3-1-0" class="hub-toggle"><span
class="hub-toggle-content">4.2.1. Instantiating the Dual Configuration Intel®
FPGA IP Core</span></a>

</div>
</div>
```

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href="/content/www/us/en/docs/programmable/683865/current/dual-
configuration-core-references.html">5. Dual Configuration Intel® FPGA IP Core
References</a>
    </div>
  </div>
</div>
<div class="hub-content-wrap">

  <a
href="/content/www/us/en/docs/programmable/683865/current/dual-
configuration-core-memory-mapped.html#dropdown-1-4-0" class="hub-toggle
```

"><span class="hub-toggle-content">5.1. Dual Configuration Intel® FPGA IP Core Avalon® Memory-Mapped Address Map</span></a>

<a  
href="/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-parameters.html#dropdown-1-4-1" class="hub-toggle  
><span class="hub-toggle-content">5.2. Dual Configuration Intel® FPGA IP Core Parameters</span></a>

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<a class="back-hub-link"  
href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-core-references.html">6. Unique Chip ID Intel® FPGA IP Core References</a>  
</div>  
</div>  
<div class="hub-content-wrap">

<a  
href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-core-ports.html#dropdown-1-5-0" class="hub-toggle "><span class="hub-toggle-content">6.1. Unique Chip ID Intel® FPGA IP Core Ports</span></a>

</div>  
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</button>



```

    </div>
  </div>
  <div class="ude-documentation-details-desktop-navigation">
    <div class="filter-dropdown-search-wrapper component disabled" data-
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        <input class="filter-dropdown-search" type="search"
id="documentation-details-search-id" aria-label="Search for filter" size="10"
placeholder="Search this document">
        <button class="btn-cancel-search" data-close="documentation-
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class="fa-cancel-1"></span></button>
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href="/content/www/us/en/docs/programmable/683865/current/fpga-
configuration-overview.html" class="">1. Intel® MAX® 10 FPGA Configuration
Overview</a>
      </div>

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          <a
href="/content/www/us/en/docs/programmable/683865/current/fpga-
configuration-schemes-and-features.html" class="">2. Intel® MAX® 10 FPGA
Configuration Schemes and Features</a>
        </div>

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schemes.html" class="">2.1. Configuration Schemes</a>
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class="btn-filter-dropdown-indicator"></span></button>
  <a
href="/content/www/us/en/docs/programmable/683865/current/jtag-
configuration.html" class="">2.1.1. JTAG Configuration</a>
</div>
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href="/content/www/us/en/docs/programmable/683865/current/jtag-pins.html">
2.1.1.1. JTAG Pins</a></li>
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```

```

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href="/content/www/us/en/docs/programmable/683865/current/internal-
configuration.html" class="">2.1.2. Internal Configuration</a>
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href="/content/www/us/en/docs/programmable/683865/current/internal-
configuration-modes.html"> 2.1.2.1. Internal Configuration Modes</a></li>

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```

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class="btn-filter-dropdown-indicator"></span></button>
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flash-memory.html" class="">2.1.2.2. Configuration Flash Memory</a>
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href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory-sectors.html"> 2.1.2.2.1. Configuration Flash Memory Sectors</a>
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```

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href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory-programming-time.html"> 2.1.2.2.2. Configuration Flash Memory
Programming Time</a>
                        </li>

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class="btn-filter-dropdown-indicator"></span></button>
            <a
href="/content/www/us/en/docs/programmable/683865/current/in-system-
programming.html" class="">2.1.2.3. In-System Programming</a>
        </div>
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```

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href="/content/www/us/en/docs/programmable/683865/current/isp-clamp.html">
2.1.2.3.1. ISP Clamp</a>
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        </ul>

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```

            <ul class="links">
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href="/content/www/us/en/docs/programmable/683865/current/real-time-
isp.html"> 2.1.2.3.2. Real-Time ISP</a>
            </li>
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```

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href="/content/www/us/en/docs/programmable/683865/current/isp-and-real-
time-isp-instructions.html"> 2.1.2.3.3. ISP and Real-Time ISP Instructions</a>
            </li>
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<a

href="/content/www/us/en/docs/programmable/683865/current/configuration-features.html" class="">2.2. Configuration Features</a>

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href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade.html" class="">2.2.1. Remote System Upgrade</a>
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href="/content/www/us/en/docs/programmable/683865/current/remote-system-
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upgrade-circuitry.html" class="">2.2.1.2. Remote System Upgrade Circuitry</a>
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href="/content/www/us/en/docs/programmable/683865/current/remote-system-
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href="/content/www/us/en/docs/programmable/683865/current/remote-system-
upgrade-circuitry-input.html"> 2.2.1.2.2. Remote System Upgrade Circuitry Input
Control</a>

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href="/content/www/us/en/docs/programmable/683865/current/remote-system-  
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Register</a>  
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href="/content/www/us/en/docs/programmable/683865/current/remote-system-  
upgrade-status-registers.html"> 2.2.1.2.4. Remote System Upgrade Status  
Registers</a>  
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machine.html"> 2.2.1.2.5. Master State Machine</a>  
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timer.html"> 2.2.1.3. User Watchdog Timer</a></li>  
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href="/content/www/us/en/docs/programmable/683865/current/dual-
configuration-core-79122.html"> 2.2.1.4. Dual Configuration Intel® FPGA IP
Core</a></li>
```

```
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```

```
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```
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class="btn-filter-dropdown-indicator"></span></button>
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design-security.html" class="">2.2.2. Configuration Design Security</a>
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class="btn-filter-dropdown-indicator"></span></button>
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href="/content/www/us/en/docs/programmable/683865/current/aes-encryption-
protection.html" class="">2.2.2.1. AES Encryption Protection</a>
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```

```
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href="/content/www/us/en/docs/programmable/683865/current/encryption-and-
decryption.html"> 2.2.2.1.1. Encryption and Decryption</a>
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class="btn-filter-dropdown-indicator"></span></button>
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href="/content/www/us/en/docs/programmable/683865/current/unique-chip-
id.html" class="">2.2.2.2. Unique Chip ID</a>
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```

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href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-
core-80250.html"> 2.2.2.2.1. Unique Chip ID Intel® FPGA IP Core</a>
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class="btn-filter-dropdown-indicator"></span></button>
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href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-
mode.html" class="">2.2.2.3. JTAG Secure Mode</a>
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mode-instructions.html"> 2.2.2.3.1. JTAG Secure Mode Instructions</a>
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```
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href="/content/www/us/en/docs/programmable/683865/current/jtag-instruction-
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class="btn-filter-dropdown-indicator"></span></button>
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href="/content/www/us/en/docs/programmable/683865/current/configuration-
flash-memory-permissions.html" class="">2.2.2.6. Configuration Flash Memory
Permissions</a>
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href="/content/www/us/en/docs/programmable/683865/current/flash-region-
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access-control-and-immutability.html"> 2.2.2.6.1. Flash Region Access Control and Immutability</a>

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<a

href="/content/www/us/en/docs/programmable/683865/current/seu-mitigation-and-configuration-error.html" class="">2.2.3. SEU Mitigation and Configuration Error Detection</a>

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href="/content/www/us/en/docs/programmable/683865/current/user-mode-error-detection.html" class="">2.2.3.2. User Mode Error Detection</a>

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block.html"> 2.2.3.2.1. Error Detection Block</a>  
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href="/content/www/us/en/docs/programmable/683865/current/change-edreg-  
jtag-instruction.html"> 2.2.3.2.2. CHANGE\_EDREG JTAG Instruction</a>  
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class="btn-filter-dropdown-indicator"></span></button>  
<a  
href="/content/www/us/en/docs/programmable/683865/current/error-detection-  
timing.html" class="">2.2.3.3. Error Detection Timing</a>  
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frequency.html"> 2.2.3.3.1. Error Detection Frequency</a>  
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href="/content/www/us/en/docs/programmable/683865/current/cyclic-
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Calculation Timing</a>
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href="/content/www/us/en/docs/programmable/683865/current/recovering-from-
crc-errors.html"> 2.2.3.4. Recovering from CRC Errors</a></li>
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href="/content/www/us/en/docs/programmable/683865/current/configuration-
data-compression.html"> 2.2.4. Configuration Data Compression</a></li>
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            <a
href="/content/www/us/en/docs/programmable/683865/current/configuration-
details.html" class="">2.3. Configuration Details</a>
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class="btn-filter-dropdown-indicator"></span></button>
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href="/content/www/us/en/docs/programmable/683865/current/configuration-
sequence.html" class="">2.3.1. Configuration Sequence</a>
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class="btn-filter-dropdown-indicator"></span></button>
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href="/content/www/us/en/docs/programmable/683865/current/power-up.html"
class="">2.3.1.1. Power-up</a>
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href="/content/www/us/en/docs/programmable/683865/current/por-monitored-
voltage-rails-for-single.html"> 2.3.1.1.1. POR Monitored Voltage Rails for Single-
supply and Dual-supply Intel® MAX® 10 Devices</a>
          </li>
        </ul>
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href="/content/www/us/en/docs/programmable/683865/current/monitored-
power-supplies-ramp-time-requirement.html"> 2.3.1.1.2. Monitored Power
Supplies Ramp Time Requirement for Intel® MAX® 10 Devices</a>
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href="/content/www/us/en/docs/programmable/683865/current/configuration-
pins.html"> 2.3.2. Intel® MAX® 10 Configuration Pins</a></li>
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href="/content/www/us/en/docs/programmable/683865/current/fpga-
configuration-design-guidelines.html" class="">3. Intel® MAX® 10 FPGA
Configuration Design Guidelines</a>
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href="/content/www/us/en/docs/programmable/683865/current/dual-purpose-
configuration-pins.html" class="">3.1. Dual-Purpose Configuration Pins</a>
        </div>
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```

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      <a
href="/content/www/us/en/docs/programmable/683865/current/guidelines-dual-
purpose-configuration-pin.html" class="">3.1.1. Guidelines: Dual-Purpose
Configuration Pin</a>
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href="/content/www/us/en/docs/programmable/683865/current/jtag-pin-sharing-
behavior.html"> 3.1.1.1. JTAG Pin Sharing Behavior</a></li>

      </ul>

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    <ul class="links">
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href="/content/www/us/en/docs/programmable/683865/current/enabling-dual-
purpose-pin.html"> 3.1.2. Enabling Dual-Purpose Pin</a></li>

    </ul>

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    <a
href="/content/www/us/en/docs/programmable/683865/current/configuring-
devices-using-jtag-configuration.html" class="">3.2. Configuring Intel® MAX®
10 Devices using JTAG Configuration</a>
  </div>
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devices-using-internal-.html" class="">3.3. Configuring Intel® MAX® 10 Devices  
using Internal Configuration</a>

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href="/content/www/us/en/docs/programmable/683865/current/selecting-  
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Modes</a></li>

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<a

href="/content/www/us/en/docs/programmable/683865/current/pof-and-icb-  
settings.html" class="">3.3.2. .pof and ICB Settings</a>

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pof.html"> 3.3.2.1. Auto-Generated .pof</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/generating-pof-  
using-convert-programming.html"> 3.3.2.2. Generating .pof using Convert  
Programming Files</a></li>

</ul>

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href="/content/www/us/en/docs/programmable/683865/current/generating-third-
party-programming-files%20generating-third-party-programming-files
%20generating-third-party-programming-files-01.html"> Generating Third-Party
Programming Files using Intel® Quartus® Prime Programmer</a></li>

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  <li class="collapsed"><a
href="/content/www/us/en/docs/programmable/683865/current/programming-
pof-into-internal-flash.html"> 3.3.3. Programming .pof into Internal
Flash</a></li>

</ul>
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2"><span class="btn-filter-dropdown-indicator"></span></button>
  <a
href="/content/www/us/en/docs/programmable/683865/current/implementing-
isp-clamp-in-software.html" class="">3.4. Implementing ISP Clamp in Intel®
Quartus® Prime Software</a>
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href="/content/www/us/en/docs/programmable/683865/current/creating-ips-
file.html"> 3.4.1. Creating IPS File</a></li>

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```
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            <li class="collapsed"><a
href="/content/www/us/en/docs/programmable/683865/current/executing-ips-
file.html"> 3.4.2. Executing IPS File</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/accessing-
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through User Logic</a></li>

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2"><span class="btn-filter-dropdown-indicator"></span></button>
            <a
href="/content/www/us/en/docs/programmable/683865/current/error-
detection.html" class="">3.6. Error Detection</a>
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href="/content/www/us/en/docs/programmable/683865/current/verifying-error-
detection-functionality.html"> 3.6.1. Verifying Error Detection
Functionality</a></li>

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        <li class="collapsed"><a
href="/content/www/us/en/docs/programmable/683865/current/enabling-error-
detection.html"> 3.6.2. Enabling Error Detection</a></li>
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href="/content/www/us/en/docs/programmable/683865/current/accessing-error-
detection-block-through.html"> 3.6.3. Accessing Error Detection Block Through
User Logic</a></li>
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        <a
href="/content/www/us/en/docs/programmable/683865/current/enabling-data-
compression.html" class="">3.7. Enabling Data Compression</a>
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href="/content/www/us/en/docs/programmable/683865/current/enabling-
compression-before-design-.html"> 3.7.1. Enabling Compression Before Design
Compilation</a></li>
```

```
</ul>
```

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        <ul class="links">
        <li class="collapsed"><a
href="/content/www/us/en/docs/programmable/683865/current/enabling-
compression-after-design-c.html"> 3.7.2. Enabling Compression After Design
Compilation</a></li>
```

</ul>

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2"><span class="btn-filter-dropdown-indicator"></span></button>
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```
  <a
href="/content/www/us/en/docs/programmable/683865/current/aes-
encryption.html" class="">3.8. AES Encryption</a>
```

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```
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  <li class="collapsed"><a
href="/content/www/us/en/docs/programmable/683865/current/generating-ekp-
file-and-encrypt-configuration.html"> 3.8.1. Generating .ekp File and Encrypt
Configuration File</a></li>
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  <li class="collapsed"><a
href="/content/www/us/en/docs/programmable/683865/current/generating-jam-
jbc-svf-file-from-ekp-file.html"> 3.8.2. Generating .jam/.jbc/.svf file from .ekp
file</a></li>
```

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```

        <a
href="/content/www/us/en/docs/programmable/683865/current/programming-
ekp-file-and-encrypted-pof-file.html" class="">3.8.3. Programming .ekp File and
Encrypted POF File</a>

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href="/content/www/us/en/docs/programmable/683865/current/programming-
ekp-file-and-encrypted-pof.html"> 3.8.3.1. Programming .ekp File and
Encrypted .pof Separately</a></li>

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```

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```

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href="/content/www/us/en/docs/programmable/683865/current/integrate-the-
ekp-into-pof-programming.html"> 3.8.3.2. Integrate the .ekp into .pof
Programming</a></li>

```

```

        </ul>

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```

        <ul class="links">
        <li class="collapsed"><a
href="/content/www/us/en/docs/programmable/683865/current/encryption-in-
internal-configuration.html"> 3.8.4. Encryption in Internal
Configuration</a></li>

```

```

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href="/content/www/us/en/docs/programmable/683865/current/jtag-secure-design-example.html" class="">3.9. Intel® MAX® 10 JTAG Secure Design Example</a>

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<li class="collapsed"><a

href="/content/www/us/en/docs/programmable/683865/current/internal-and-external-jtag-interfaces.html"> 3.9.1. Internal and External JTAG Interfaces</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/jtag-wysiwyg-atom-for-jtag-control-block.html"> 3.9.2. JTAG WYSIWYG Atom for JTAG Control Block Access Using Internal JTAG Interface</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/executing-lock-and-unlock-jtag-instructions.html"> 3.9.3. Executing LOCK and UNLOCK JTAG Instructions</a></li>

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href="/content/www/us/en/docs/programmable/683865/current/verifying-the-jtag-secure-mode.html"> 3.9.4. Verifying the JTAG Secure Mode</a></li>

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<a href="/content/www/us/en/docs/programmable/683865/current/fpga-configuration-ip-core-implementation.html" class="">4. Intel® MAX® 10 FPGA Configuration IP Core Implementation Guides</a>

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<a href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-core-27700.html" class="">4.1. Unique Chip ID Intel® FPGA IP Core</a>

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<li class="collapsed"><a href="/content/www/us/en/docs/programmable/683865/current/instantiating-the-unique-chip-id-core.html"> 4.1.1. Instantiating the Unique Chip ID Intel® FPGA IP Core</a></li>

</ul>

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<li class="collapsed"><a href="/content/www/us/en/docs/programmable/683865/current/resetting-the-

unique-chip-id-core.html"> 4.1.2. Resetting the Unique Chip ID Intel® FPGA IP Core</a></li>

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<a

href="/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-26199.html" class="">4.2. Dual Configuration Intel® FPGA IP Core</a>

</div>

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<li class="collapsed"><a

href="/content/www/us/en/docs/programmable/683865/current/instantiating-the-dual-configuration-core.html"> 4.2.1. Instantiating the Dual Configuration Intel® FPGA IP Core</a></li>

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<a

href="/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-references.html" class="">5. Dual Configuration Intel® FPGA IP Core References</a>

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<li class="collapsed"><a href="/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-memory-mapped.html">5.1. Dual Configuration Intel® FPGA IP Core Avalon® Memory-Mapped Address Map</a></li>

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<li class="collapsed"><a href="/content/www/us/en/docs/programmable/683865/current/dual-configuration-core-parameters.html">5.2. Dual Configuration Intel® FPGA IP Core Parameters</a></li>

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<a href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-core-references.html" class="">6. Unique Chip ID Intel® FPGA IP Core References</a>

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href="/content/www/us/en/docs/programmable/683865/current/unique-chip-id-
core-ports.html">6.1. Unique Chip ID Intel® FPGA IP Core Ports</a></li>
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href="/content/www/us/en/docs/programmable/683865/current/document-
revision-history-for-the-fpga.html" class="">7. Document Revision History for
the Intel® MAX® 10 FPGA Configuration User Guide</a>
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<!-- Content Section -->
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    <p><span class="label"></span> <span
class="info">Ixiasoft</span>
    </p>
```

```
  </div>
  <div class="col-lg-2 col-xs-12">
    <p class="cta-item">
      <a class="btn btn-tertiary"
href="/content/www/us/en/secure/design/internal/content-details.html?
DocID="><span>View Details</span></a>
    </p>
  </div>
</div>
```

```

</div>

<div class="ude-documentation-details-content">
  <h2 class="h3 desktop-only">3.6. Error Detection</h2>
  <div id="sss1394534526396">
<div class="related-links">
<div class="sectioninfo">
  <br><strong>Section Content</strong>
  <br> <a class="link"
href="/content/www/us/en/docs/programmable/683865/current/verifying-error-
detection-functionality.html">Verifying Error Detection Functionality</a>
  <br> <a class="link"
href="/content/www/us/en/docs/programmable/683865/current/enabling-error-
detection.html">Enabling Error Detection</a>
  <br> <a class="link"
href="/content/www/us/en/docs/programmable/683865/current/accessing-error-
detection-block-through.html">Accessing Error Detection Block Through User
Logic</a>
  <br>
</div>
<br>
</div>
</div>
<div class="modal fade modal-image" id="image-expand-modal"
tabindex="-1" role="dialog">
  <div class="modal-dialog">
    <div class="modal-content">
      <div class="modal-header">
        <button type="button" class="close icon" data-dismiss="modal"
aria-label="Close">
          <span></span></button>
      </div>
      <div class="modal-body"></div>
    </div>
  </div>
</div>
<div class="ude-documentation-details-mobile-content-navigation">
  <a class="btn btn-secondary" href="#">
    <span>Level Two Title</span>
  </a>
</div>
<div class="ude-documentation-details-desktop-content-navigation">
  <a class="btn btn-tertiary previous"
href="/content/www/us/en/docs/programmable/683865/current/accessing-
remote-system-upgrade-through.html"><span
class="indicator"></span><span class="copy">3.5. Accessing Remote System
Upgrade through User Logic</span></a>
  <a class="btn btn-tertiary next"
href="/content/www/us/en/docs/programmable/683865/current/verifying-error-
detection-functionality.html"><span class="indicator"></span><span
class="copy"> 3.6.1. Verifying Error Detection Functionality</span></a>
</div>
</div>

```

```
</div>
<div class="feedbackTool container">
```

```
<script type="text/javascript">
  var intelFeedback = intelFeedback || {};
  intelFeedback.gtvLabels = {
    remainingText: 'Characters remaining',
    remainingTextOne: 'Character remaining',
    feedbackMessage: 'Feedback Sent'
  };
</script>
```

```
<section id="feedbackToolContainer" class="feedbackTool component" data-
component="coveo-feedback-modal" data-component-id="1" aria-
labelledby="fbc-title">
  <div class="fbc-header noselect" id="fbc-header" data-
wap_ref="close:feedback-modal" tabindex="0">
    <!-- icon -->
    <input type="hidden" id="errMissingResponse" value="Please answer at
least one question">
    <h2 class="fbc-title" id="fbc-title">
      <button aria-controls="fbc-body" aria-expanded="false" class="fbc-title-
btn" id="fbc-title-btn" type="button">
        
        <span class="fbc-title-label" id="fbc-title-label"> Give
Feedback</span>
      </button>
    </h2>

    <!-- close -->
    <button class="close fa-cancel-thin" aria-label="close feedback"
type="button" tabindex="0">
      <svg aria-hidden="true" class="close-icon" height="11" width="11"
viewBox="0 0 12 12">
        <line stroke="currentColor" stroke-width="1" x1="0" y1="0" x2="12"
y2="12"></line>
        <line stroke="currentColor" stroke-width="1" x1="0" y1="12"
x2="12" y2="0"></line>
      </svg>
    </button>
  </div>

  <!-- body -->
  <div class="fbc-body">
```



```

<!-- question -->
<div aria-labelledby="feedback-question" role="radiogroup" aria-
describedby="yesno-error" aria-required="true" id="fbc-question-div">
  <p class="fbc-question" id="feedback-question">
    Did you find the information on this page useful?
  </p>

  <!-- checkboxes -->
  <div class="fbc-checkboxes">
    <!-- yes -->

    <div id="yesno-yes-block" class="fbc-checkboxes-yes">
      <input id="yesno-yes" type="radio" name="yesno" value="1"
autocomplete="off">
      <label id="yesno-yes-label" for="yesno-yes" data-wap_ref="results-
delivered:yes">
        <span style="vertical-align: middle;">
          Yes
        </span>
      </label>
    </div>

    <!-- no -->
    <div id="yesno-no-block" class="fbc-checkboxes-no">

      <input id="yesno-no" type="radio" name="yesno" value="0"
autocomplete="off">
      <label id="yesno-no-label" for="yesno-no" data-wap_ref="results-
delivered:no">

        <span style="vertical-align: middle;">
          No
        </span>
      </label>
    </div>

    <div class="fbc_yesno_error"><span id="yesno-error" aria-
live="polite"></span></div>
  </div>

  <!-- comments -->
  <div class="fbc-comments">
    <!-- textarea -->
    <label class="fbc_comments_label" for="yesno-comment">
      <span>
        How could we improve the page?
      </span>
    </label>
    <textarea id="yesno-comment" name="yesno-comment" rows="5"
maxlength="500" autocomplete="off" aria-describedby="yesno-comment-
count"></textarea>

```

```

        <!-- character count -->
        <p id="yesno-comment-count" class="fbc-character-count">Characters
remaining: <span id="yesno-remaining-characters">500</span></p>
    </div>

```

```

        <input type="hidden" id="errServerError" value="There was an error.
Please try again.">

```

```

        <!-- submit -->
        <div class="fbc-submit">
            <button type="button" id="fbc-submit" data-
wap="{&quot;message&quot;:&quot;message_not_added&quot;}" data-
wap_ref="feedback_modal_send">

```

```

                Send Feedback

```

```

            </button>

```

```

        </div>

```

```

        <div id="feedbackModal" class="feedbackmodal">

```

```

            <div class="feedbackmodal-content">

```

```

                <div class="fbc-feedbackheader">

```

```

                    <p>Feedback Message</p>

```

```

                </div>

```

```

                <div class="feedbackmessage">

```

```

                    <p aria-live="polite" id="feedbacksentmessage"></p>

```

```

                </div>

```

```

                <div class="fbc-submitok">

```

```

                    <button type="button" id="fbc-submitok" aria-
hidden="true">Ok</button>

```

```

                </div>

```

```

            </div>

```

```

        </div>

```

```

    </div>

```

```

</section>

```

```

</div>

```

```

    </div>

```

```

</div>

```

```

<script src="https://cdnjs.cloudflare.com/ajax/libs/mathjax/2.7.1/MathJax.js?
config=TeX-MML-AM_CHTML" id=""></script>

```

```

<script

```

```

src="/etc.clientlibs/settings/wcm/clientlibs/ckeditor/resources/prism.js"></
script>

```

```

<div class="disclaimer parbase">

```

<div class="translationDisclaimer parbase">

</div>

</div>

<div class="helpModule getHelpComponent parbase">

```

<div id="getHelpComponent-1" class="component get-help-module"
data-component="getHelpComponent" data-component-id="1">
    <aside id="gethelp" class="right fixed-bottom hidden" role="dialog"
data-help-config-url="/libs/intel/get-help.us_en.default" style="display: none;">
        <div class="wrapper">

            <div class="navbar" aria-label="Get Help Dialog Header">
                <a name="gethelp_button" id="gethelp_button"></a>

                <button class="container-fluid navbar-toggler btn btn-primary
collapsed d-flex justify-content-between" type="button" data-toggle="collapse"
data-target="#gethelp-accordion" aria-controls="gethelp-accordion" aria-
expanded="false" aria-label="Get Help Dialog" data-btn-ref="get-help" data-
wap="" data-wap_ref="get-help-collapsed">
                    <span class="navbar-toggler-icon-gethelp chat-icon icon align-icons
fa-user-headset" aria-hidden="true" title=""></span>
                    <span id="gethelp-heading" class="navbar-toggler-title"
aria-hidden="true">Get Help</span>

                    <span class="navbar-toggler-icon-close icon align-icons fa-
cancel-thin" aria-hidden="true" title="Close Get Help Dialog"></span>
                </button>
            </div>

            <ul id="gethelp-accordion" class="accordion panel-group
collapse" data-allow-toggle="" aria-label="Accordion">
                </ul>

        </div>

    </aside>
</div>
<link rel="stylesheet"
href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/get-
help.min.css" type="text/css"><script
src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/get-
help.min.js" defer=""></script>

```

</div>

</main>

```
<footer class="global blade solid brand-lighter-gray theme-light-2 component"
data-component-id="1" data-component="footer" role="contentinfo" data-
wap_type="wa_skip_track" id="skip-footer">
  <div class="container">
    <div class="content-footer">
      <div class="content">
```

```
        <ul class="footer-links">
```

```
          <li>
```

```
            <a
```

```
href="/content/www/us/en/company-overview/company-
overview.html">Company Overview</a>
```

```
          </li>
```

- [Contact Intel](/content/www/us/en/support/contact-intel.html)
- [Newsroom](/content/www/us/en/newsroom/home.html)
- [Investors](https://www.intc.com/)
- [Careers](/content/www/us/en/jobs/jobs-at-intel.html)
- [Corporate Responsibility](/content/www/us/en/corporate-responsibility/corporate-responsibility.html)
- [Diversity & Inclusion](/content/www/us/en/diversity/diversity-at-intel.html)
- [Public Policy](/content/www/us/en/company-overview/public-policy.html)

- 

- [<i aria-hidden="true" class="fa-facebook"></i>](https://www.facebook.com/Intel)

```

        </li>

        <li>
            <a href="https://twitter.com/intel" target="" aria-
label="Intel on Twitter" data-
wap="{&quot;linktype&quot;:&quot;footersocial&quot;}">
                <i aria-hidden="true" class="fa-twitter"></i>
            </a>
        </li>

        <li>
            <a href="https://www.linkedin.com/company/intel-
corporation" target="" aria-label="Intel on LinkedIn" data-
wap="{&quot;linktype&quot;:&quot;footersocial&quot;}">
                <i aria-hidden="true" class="fa-linkedin"></i>
            </a>
        </li>

        <li>
            <a href="https://www.youtube.com/user/channelintel?
sub_confirmation=1" target="" aria-label="Intel on YouTube" data-
wap="{&quot;linktype&quot;:&quot;footersocial&quot;}">
                <i aria-hidden="true" class="fa-youtube"></i>
            </a>
        </li>

        <li>
            <a href="https://www.instagram.com/intel/" target=""
aria-label="Intel on Instagram" data-
wap="{&quot;linktype&quot;:&quot;footersocial&quot;}">
                <i aria-hidden="true" class="fa-instagram"></i>
            </a>
        </li>
    </ul>

```

```

        <ul class="footer-links secondary-links"
id="footerSecondaryLinks">

```

```

            <li>

```

```

                <small>© Intel Corporation</small>

```

```

            </li>

```

<li>

use.html">  
    <a href="/content/www/us/en/legal/terms-of-  
        <small>Terms of Use</small>  
    </a>

</li>

<li>

    <a  
href="/content/www/us/en/legal/trademarks.html">  
        <small>\*Trademarks</small>  
    </a>

</li>

<li>

    <a href="/content/www/us/en/privacy/intel-  
cookie-notice.html" data-cookie-notice="true">  
        <small>Cookies</small>  
    </a>

</li>

<li>



privacy-notice.html">  
    <a href="/content/www/us/en/privacy/intel-  
        <small>Privacy</small>  
    </a>

</li>

<li>

responsibility/statement-combating-modern-slavery.html">  
    <small>Supply Chain Transparency  
</small>  
    </a>

</li>

<li>

    <a  
href="/content/www/us/en/siteindex.html">  
        <small>Site Map</small>  
    </a>

</li>

</ul>

```
<div class="footer-disclaimer">
  <p>Intel technologies may require enabled hardware, software
or service activation. // No product or component can be absolutely secure. //
Your costs and results may vary. // Performance varies by use, configuration and
other factors. // See our complete legal <u><a
href="https://edc.intel.com/content/www/us/en/products/performance/
benchmarks/overview/#GUID-26B0C71C-25E9-477D-9007-
52FCA56EE18C">Notices and Disclaimers</a></u>. // Intel is committed to
respecting human rights and avoiding complicity in human rights abuses. See
Intel's <a href="https://www.intel.com/content/www/us/en/policy/policy-human-
rights.html"><u>Global Human Rights Principles</u></a>. Intel's products and
software are intended only to be used in applications that do not cause or
contribute to a violation of an internationally recognized human right.</p>
```

```
</div>
```

```
</div>
<div class="logo-container">
  <a href="/content/www/us/en/homepage.html" class="footer-logo-
rebrand" aria-label="Intel Footer Logo" title="Intel Footer Logo">
    
  </a>
</div>
</div>
</div>
</footer>
```

```
<textarea id="defers" title="" style="display:none;">
  &lt;script&gt;var isTargetEnabled =false;&lt;/script&gt;
```

```
<script type="text/javascript">
  var cq_tms = {
    wa_emtcontenttype:
"emtcontenttype:designanddevelopmentreference/developerguide/developeruse
rguide",
    wa_primarycontenttagging:
"primarycontenttagging:intelfpgas/intelprogrammabledevices,primarycontenttag
ging:intelfpgas/intelprogrammabledevices/intelmax/
intelmax10fpgas,primarycontenttagging:intelfpgas/
intelfpgaintellectualproperty/basicfunctions",
    wa_curated: "curated:donotuseinexternalfilters/recommended",
    wa_emtsubject: "emtsubject:design/fpgadesign/remotesystemupgrades",

    wa_industry_type: "",
    wa_partner_prog: "",
    wa_subject: "",
    wa_biz_size: "",
    wa_emt_org: "",
```

```

    wa_emt_intel: "",
    wa_partner_type: "",
    wa_programidentifier: "",
    wa_location: "us",
    wa_language: "en",
    wa_english_title: "3.6. Error Detection",
    wa_content_type: "",
    wa_intel_platform: "",
    wa_applications: "",
    wa_local: "en_US",
    wa_intel_technology: "",
    wa_system_type: "",
    wa_product_name: "",
    wa_audience:
"emtaudience:business/btssbusnesstechnologysolutionspecialist/developer/
fpgaengineer",
    wa_life_cycle: "",
    wa_cq_url: "/content/www/us/en/docs/programmable/683865/current/error-
detection.html",
    wa_page_type_micro: "udeDocumentationDetail",
    wa_env: "prd",
    wa_cq_pub_env: "publish",
    wa_transl_status: "",
    wa_product_id: "98847,216704,216704,215648",
    wa_software: "",
    wa_reference_design: "",
    wa_codename: "",
    wa_created_date: "1639788877006",
    wa_modified_date: "1639788877013",
    wa_off_time: "1924992000000",
    wa_ownedby: "",
    wa_managedby: "",
    wa_idz_nid : "",
    wa_event_type: "",
    wa_idz_custom_tags: "",
    wa_programming_language: "",
    wa_skill_level: "",
    wa_solution: "",
    wa_product_formFactor: "",
    wa_operating_system: "",
    wa_marketing_products: "",
    wa_ssg_third_party_prod_sys_sol: "",
    wa_upeNamespace: "",
    wa_doc_id:"683865",
    wa_doc_version:"current",
    wa_doc_publishdate:"5/26/2022",

    wa_secondary_content_type:
"emtcontenttype:designanddevelopmentreference/developerguide/developeruse
rguide"

```

```
};
```

cq\_tms.wa\_tms\_sync\_load = "deferred";

</script>

<script type="text/javascript">

var chatContextObj = {};

chatContextObj["locale"] = 'en-US';

chatContextObj["app"] = 'PSG';

chatContextObj["supportProductMap"] = 'NA';

</script>

<script src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/detect-idsa.min.js" defer></script>

<script type="text/javascript"

src="/content/dam/www/global/wap/tms.sync.js" async></script>

<link rel="stylesheet"

href="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/commons-page.min.css" type="text/css"><script

src="/etc.clientlibs/settings/wcm/designs/ver/220720/intel/clientlibs/pages/commons-page.min.js" defer></script>

<script>!function(){var e=setInterval(function(){"undefined"!=typeof \$CQ&&(\$CQ(function(){CQ\_Analytics.SegmentMgr.loadSegments("/etc/segmentation"),CQ\_Analytics.ClientContextUtils.init("/etc/clientcontext/



Pj08Ozo5ODc2NTQzMjEwLy4tLCSqKSgnJiUklyIhIB8eHRwbGhkYFxyVFBMSERAPDg  
0MCwojCacGBQQDAgEAACH5BAXcBQQALAAAAABGAEYAAAP/SDTc/  
jDKSataNevNGe5gKI5kaZ5oqq5s675wLM90bd94ru987/+2gHBILAlhAYFyyVwGjo9  
kcyp4QhtSKtN6HWS1Su71CxZDyVrzEU1VA9IT9w/elKuKeGIUvJXR+w5/  
Tn58g4GFYYSIZoKJMY1Ve4uKhYyIkY+XlpOZnFialHybIRx5ppKkh54ZkKOiqK8brbBlT  
GmloKqpn6sVs7qxvLusucLBDL8aycjFzL0Uy17N0s8T0dfT0NPY1RLcw9Tg2r3fx77b  
6N0R5bXA7crp4NHj8vHm9Obst7L2787i1vrtM+bvHDmBbUqZwhNloZFADvV0mUi  
xosWLGDNq3MixCqNHCh88XviolAEAlfkEBQ0ABAAsBwARADcAHQAAA25lutz+kl1J  
q404Y8ur/  
iDRjWEZjZ25BGzrv3KqUog3HiOB7Hs0TadUMCT+Cg0QnCYKy6OSCBT51RAJ8nllO  
h4eVljxRYXLpvP6LR6zW673/C4fN6D0p/  
XuzWvvw70Inx3foCEfYJ0hnpfXoAECQA+QQFDQAEACwHABEANwAhAAADXki63B  
0wymqvTilzTsPWChWmmck4KiK5dmla2y5nmzfeK7vfO//wNBgSCwag0KkojELJ/  
Ny3MZtUyV1cr1mHVMvpCueEwum8/otHrNbrvfzW3RLGeW60M6/  
gz+nhMAIfkEBQ0ABAAsBwARADcAIQAAA2Jlutw9MMrpqr14aom7r1v4jV+4kSgWr  
GzLpnAsz3Rt33iu73zv/8CgcEh0mDRFwpFSXHKA TkgyKoVGp9QkwcVdab/  
gZHcsFpjP6H0gnG4L1sWAuw0nyufo+vCON+uHfWdaCQA+QQFDQAEACwHABU  
ANwAaAAADZUI63D0wymqvXhqibuvW/iNX7iR6GVqafusnCsTQW3f9qzvfO//  
wKBwSCwaj8gGbnllLgKcQHqQDTgVUKpWYL1mt9PuDib5gqNiHTliPqdna0gb/  
JbFB4Tz1He/  
EvpXgF5MOAQJACH5BAUNAAQALAcAFQA3ABoAAANvGLrc9DDKSWsMluutg/  
3gh3Gk4IVoOpbbmb7WymYubF9ze+  
+QPNeEgXBILPJ8LGBxSTzmOhKm1Pk0RaVL6hNlaHgVvG7VGr4hS9xy6ExKq0Vj99  
syntvv+Lx+z+/  
7/4CBFV+Egg9sHHJ7iDqGBHUJACH5BAUNAAQALAcAEQA3ABsAAANbGLrc9DDKS  
WsMluutg/  
3gh3Gk4IVoOpbbmb4fy8F0bd94ru987/9AXGPIClPkLaNIhXQpJUyZ8xIBaqjYrHbL7e  
al4G6UNcWOS2XqmZR+rjlt5TvJnXe81gwhAQAh+QQFDQAEACwHABEANwAaAAA  
DSzi63PQwyklrbjJzZxf+XSgSXzaeW6Cu7lq+cCzPdG3feK7vVInxFp8D2BMuiEXjAEI  
pOVXMqHRKrVpHskU1u6Ryt1mwUmy0Pp2EBAAh+QQFDQAEACwHABUANwAaAA  
ADZDi63PQwyklrbjJzZxf+XSgSXzaeVomhrKQ6bfqxUWDfeC7PihQlWKAwGNjxfMMk  
sNji9WrKJPIHEyiwxjJqW1yu6gqOPwdj3Jom3nNbrvf8Lh8TI+L65A7fnvc82d+D2loB  
AkAlfkEBQ0ABAAsBwAVADcAGgAAA2plutwdMMrpqr04iM07D1goVppnCuCoixZp  
WtMuh4s30pLo3iv7ByfcEgsGo/  
lpHLJbDqf0MZgSq1aowurtopVbL9dwndbnJgIY20ZuAmkr0Qdzf2mrtmgs9kod9mgf  
Sd/  
T4Emg09sAgQJACH5BAUNAAQALAcAEQA3ACEAAANhSLrcHTDK6aq9OIJN0w9YKF  
aaZwrgqIrl2aVrbLmebN94ru987//  
AoHBILBqPyKRYqZs4JcwWDRWdfqpW6lJKgyW5Lm8yK2Caz+iBes1uM9tw9jsen9Pd  
yzvcrlebn05mCQA+QQFDQAEACwHABEANwAhAAADZUI63D0wymqvXhqibuvW  
/  
iNX7iRKBasbMumcCzPdG3feK7vfOX+rd4lICgaj8aA0EJEogXKpaP5PEalDGq1eMUqt  
Nuul7A9js/otHrNbrvf8LgcDqynwVUxFv/US/  
IOfljIRmoJACH5BAVhAAQALAcAEQA3ACgAAAPAOlrc/  
pCBSauNOGMguv8eol3kwIGolJYsdKbf2s7LC3cyPdt3rrM8m09HCqaGRIORhUxubjG  
dZVppLEFNJTRk3eKkXIXXm81co5Jw+Ukeb9eRMzfdpsm/  
9De4XIPv9XIQVIM+d2KBPYaFfohCim6CklmMfXwKio+NR5KOJjeeJmqZIYCKgqOfIqF  
kqKulqW+tsqKgs6y1uLeqtrG5r66nvpGaTLzDppO7wsm/  
xsZhsNDAzz2cm8RYhFNW2IUS3RQJADs=';onsKey=0;function  
ONS\_sCookie(n,v,e,d){var cdate=new Date();if(e)cdate.setTime(cdate.getTime()  
+(e\*24\*60\*60\*1000));dD.cookie=n+'='+escape(v)+  
(e?';expires='+cdate.toGMTString():')+ (d?';domain='+d:'')  
+';path=/;secure;samesite=none';}function ONS\_showIcon(n){var  
chat=document.getElementsByClassName('embeddedServiceHelpButton');if(cha

```

t.length==0)chat=document.getElementsByClassName('avaamo__chat__widget'
);var position=(chat.length==0?'right':'left');var
onObj=ONS_getObj('onSiteonRTag');onObj.innerHTML='<A title="" +onsPmsg+"
name="onsitelink" href="" +onsPATH+ONS_getCoreScript()+'?
s=22&geo='+onsKey+ONS_getPBVS('&')+"" target="onsitesurvey" style="text-
decoration:none" onclick="ONS_collectDataLake(); return
ONS_getSurvey();"><FIGURE id="survey-icon" style="position:fixed;z-
index:998;bottom:2em;'+position+':1em;cursor:pointer;background-
color:#0081d6;border-radius:2px;box-shadow:2px 2px 0px
rgba(0,0,0,0.15);"><IMG alt="Survey icon"
src="data:image/gif;base64,'+onsIconURI+'"" border="0" width="70"
height="70"/></FIGURE></A>';onObj.style.cssText="";onObj.style.display='bloc
k';}window.ONS_setStage=function(n,a){var
onObj=dD.createElement('script');onObj.src=onsPATH+'j_stagescript.asp?
s='+n+'&r='+encodeURIComponent(onsCURL)
+'&a='+a+ONS_getPBVS('&');dD.body.appendChild(onObj);};window.ONS_getOn
ResearchWebID=function(){var sid=onsUSID||ONS_gCookie(cn+'SID');var
m=sid.indexOf('M');if(sid==''||m==-1||m+14>sid.length){return sid;}else{var
sid1=sid.substring(0,4);var sid2=sid.substring(4,8);var
sid3=sid.substring(m+2,m+6);var sid4=sid.substring(m+6,m+10);var
sid5=sid.substring(m+10,m+14);return
sid1+'-'+sid2+'-'+sid3+'-'+sid4+'-'+sid5;}};window.ONS_detectLanguageObject
=function(){if(window.location.href.indexOf('channeltraining.intel.com')!=-1)
{onsKey=(typeof __lang!='undefined'?(__lang=='de_DE'?5:__lang=='zh_CN'?
3:__lang=='zh_TW'?8:__lang=='fr_FR'?1:__lang=='it_IT'?13:__lang=='ja_JA'?
4:__lang=='ko_KO'?9:__lang=='pl_PL'?17:__lang=='pt_PT'?6:__lang=='ru_RU'?
2:__lang=='es_ES'?7:__lang=='th_TH'?15:__lang=='tr_TR'?14:__lang=='vi_VI'?
16:__lang=='es_MX'?12:0):0);}else
if(window.location.href.indexOf('community.intel.com')!=-1){onsKey=(typeof
ighf_lang!='undefined'?(ighf_lang=='de_DE'?5:ighf_lang=='zh_CN'?
3:ighf_lang=='zh_TW'?8:ighf_lang=='fr_FR'?1:ighf_lang=='it_IT'?
13:ighf_lang=='ja_JP'?4:ighf_lang=='ko_KR'?9:ighf_lang=='pt_BR'?
6:ighf_lang=='ru_RU'?2:ighf_lang=='es_XL'?12:0):0);}else
if(window.location.href.indexOf('partneruniversity.intel.com')!=-1)
{onsKey=(typeof __lang!='undefined'?(__lang=='de'?5:__lang=='zh'?
3:__lang=='tw'?8:__lang=='fr'?1:__lang=='it'?13:__lang=='ja'?4:__lang=='ko'?
9:__lang=='pl'?17:__lang=='pt'?6:__lang=='ru'?2:__lang=='es'?7:__lang=='th'?
15:__lang=='tr'?14:__lang=='vi'?16:__lang=='mx'?12:0):0);}else
if(window.location.href.indexOf('partner.intel.com')!=-1||
window.location.href.indexOf('points.intel.com')!=-1){onsKey=(typeof langAry!
='undefined'&&langAry.length==2?(langAry[0]+langAry[1]=='dede'?
5:langAry[0]+langAry[1]=='zhcn'?3:langAry[0]+langAry[1]=='zhtw'?
8:langAry[0]+langAry[1]=='frfr'?1:langAry[0]+langAry[1]=='itit'?
13:langAry[0]+langAry[1]=='jajp'?4:langAry[0]+langAry[1]=='kokr'?
9:langAry[0]+langAry[1]=='plpl'?17:langAry[0]+langAry[1]=='ptbr'?
6:langAry[0]+langAry[1]=='ruru'?2:langAry[0]+langAry[1]=='eses'?
7:langAry[0]+langAry[1]=='thth'?15:langAry[0]+langAry[1]=='trtr'?
14:langAry[0]+langAry[1]=='vivn'?16:langAry[0]+langAry[1]=='esxl'?
12:0):0);}};ONS_detectLanguageObject();window.ONS_detectATObject=function(
){if(typeof wap_at_meta!='undefined'&&typeof wap_at_meta.length!
='undefined'){if(wap_at_meta.length>0&&typeof wap_at_meta[0].experience!
='undefined')return wap_at_meta[0].experience.toLowerCase().replace(/
/g,'_');}return ""};window.ONS_setSiteExp=function(){var
exp=ONS_detectATObject();if(exp!=''){var onCObj=new Image();var t=new

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Date();onCObj.src=onsPATH+'j_saveExpInfo.asp?
sid='+onsUSID+'&tid='+Date.UTC(t.getFullYear(),t.getMonth()
+1,t.getDate(),t.getHours(),t.getMinutes(),t.getSeconds())
+'&cUrl='+encodeURIComponent(dD.location)
+'&exp='+encodeURIComponent(exp);});setTimeout('ONS_setSiteExp()',2000);
window.onsHashPB=['partneruniversity.intel.com','marketplace.intel.com','partn
er.intel.com','points.intel.com','/support/contact-
intel.html'];window.ONS_setHashPB=function(){var hpb=false;for(var
i=0;i<onsHashPB.length;i++){if(onsCURL.indexOf(onsHashPB[i])!=-1)
{hpb=true;break;}}if(hpb){sot=setInterval(function(){if(onsCURL!
=window.location.href){var onPValue=new Image();var t=new
Date();onPValue.src=onsPATH+'j_saveHashInfo.asp?
t='+Date.UTC(t.getFullYear(),t.getMonth()
+1,t.getDate(),t.getHours(),t.getMinutes(),t.getSeconds())
+'&r='+encodeURIComponent(location.href)
+ONS_getPBVS('&');onsCURL=window.location.href;if(typeof
ONS_setSiteLanguage!
='undefined')ONS_setSiteLanguage();}},3000);}};window.ONS_gIDSAAction=fun
ction(tag){var
p='https://onsite2.researchintel.com/engine/j_saveIDSAInfo.asp';var
sid=ONS_gCookie('intelresearchSID');var
uid=ONS_gCookie('intelresearchUID');var gid=ONS_gCookie('gawap');var i=new
Image();var t=new Date();i.src=p+'?t='+Date.UTC(t.getFullYear(),t.getMonth()
+1,t.getDate(),t.getHours(),t.getMinutes(),t.getSeconds())
+'&sid='+sid+'&uid='+uid+'&gid='+gid+'&r='+encodeURIComponent(location.
href+'#'+tag);};window.ONS_collectDataLake=function(){var
cid,vid,aid;cid=(typeof utag_data!='undefined'&&typeof
utag_data['wa_client_id']!='undefined')?utag_data['wa_client_id']:"";vid=(typeof
utag_data!='undefined'&&typeof utag_data['wa_visit_id']!='undefined')?
utag_data['wa_visit_id']:"";aid=(typeof adobe_org_id!
='undefined'&&ONS_gCookie(adobe_org_id)!='')?
ONS_gCookie(adobe_org_id):";if(cid!=''||vid!=''||aid!=''){var datalake=new
Image();var t=new Date();var qs='?
sid='+onsUSID+'&t='+Date.UTC(t.getFullYear(),t.getMonth()
+1,t.getDate(),t.getHours(),t.getMinutes(),t.getSeconds());qs+='&cid='+encode
URIComponent(cid);qs+='&vid='+encodeURIComponent(vid);qs+='&aid='+enc
odeURIComponent(aid);datalake.src=onsPATH+'saveDataLake.asp'+qs;}};functi
on ONS_launchYNInvite(){if((ONS_gCookie('inteliqresearch')==='1'||
ONS_gCookie('inteliqresearch2')==='1')&&ONS_gCookie(cn+'REF').indexOf('.intel.'
)==-1)
{if(ONS_gCookie('inteliqresearch')==='1')ONS_sCookie('inteliqresearch','2',cdv,ch)
;if(ONS_gCookie('inteliqresearch2')==='1')ONS_sCookie('inteliqresearch2','2',cdv,c
h);setTimeout('ONS_popYNInvite()',30000);}}function ONS_popYNInvite()
{if(ONS_gCookie('inteliqresearch')==='2')ONS_sCookie('inteliqresearch','3',cdv,ch)
;if(ONS_gCookie('inteliqresearch2')==='2')ONS_sCookie('inteliqresearch2','3',cdv,c
h);var onObj=dD.createElement('DIV');onObj.id='feedback-widget';var
onFT=['Give Feedback','Donnez votre avis','\u041E\u0441\u0442\u0430\u0432\u044C\u0442\u0435 \u043E\u0442\u0437\u0442\u0437\u0442\u0432','\u0630\u04F9B\u053CD\u09988','\u03054\u0610F\u0898B\u030FB\u03054\u08981\u0671B','Feedback
senden','Fornecer feedback','Dejar comentario','\u0630\u04F9B\u0610F\u0898B\u056DE\u0994B','\u053C\u0B4DC\u0BC31 \u0C81C\u0ACF5','Give Feedback','Give
Feedback','Dejar comentario','Fornisci il tuo feedback','Geri Bildirimde Bulunun','\u0E43\u0E2B\u0E49\u0E04\u0E27\u0E32\u0E21\u0E04\u0E34\u0E14\u0E40\u0E2B\u0E47\u0E19','G\u1EEDi ph\u1EA3n h\u1ED3i','Czekamy na Twoj\u0105

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opini\u00119','Berikan Umpan Balik','Donnez votre avis','Give Feedback','\u005D4\u005E2\u005E0\u005E7 \u005DE\u005E9\u005D5\u005D1','Give Feedback','Give Feedback'];var onQT=['Did you find the information you were looking for?','Vous avez trouv\u00E9 les informations que vous recherchez\u00A0?','\u00412\u0044B \u0043D\u00430\u00448\u0043B\u00438 \u00438\u0043D\u00444\u0043E\u00440\u0043C \u00430\u00446\u00438\u0044E, \u0043A\u0043E\u00442\u0043E\u00440\u00443\u0044E \u00438\u00441\u0043A\u00430\u0043B\u00438?','\u0060A8\u00662F\u005426\u00627E\u005230 \u004E86\u0060A8\u009700\u008981\u007684\u004FE1\u00606F\u00FF1F','\u00304A\u0063A2\u003057 \u00306E\u0060C5\u005831\u00306F\u00898B\u003064\u00304B\u00308A\u00307E\u003057\u00305F \u00304B\u00FF1F','Haben Sie die Informationen gefunden, die Sie suchen?','Voc\u00EA encontrou as informa\u00E7\u00F5es que estava procurando?','\u00BFHa encontrado la informaci\u00F3n que buscaba?','\u0060A8\u00662F\u005426\u00627E \u005230\u004E86\u0060A8\u0060F3\u005C0B\u00627E\u007684\u008CC7\u008A0A\u00FF1F','\u00C6D0 \u00D558\u00B294 \u00C815\u00BCF4\u00B97C \u00CC3E\u00C73C\u00C168\u00C2B5\u00B2C8 \u00AE4C?','Did you find the information you were looking for?','Did you find the information you were looking for?','\u00BFEncontr\u00F3 la informaci\u00F3n que estaba buscando?','Hai trovato le informazioni che stavi cercando?','Arad\u00131\u0011F\u00131n\u00131z bilgiyi bulabildiniz mi?','\u00E04\u00E38\u00E13 \u00E1E\u00E1A\u00E02\u00E49\u00E2D\u00E21\u00E39\u00E25\u00E17\u00E35\u00E48 \u00E04\u00E49\u00E19\u00E2B\u00E32\u00E2B\u00E23\u00E37\u00E2D\u00E44\u00E21 \u00E48','B\u001EA1n c\u00F3 t\u00ECm th\u00EA5y th\u00F4ng tin m\u00E0 b\u001EA1n mu\u00EDD1n t\u00ECm kh\u00F4ng?','Czy uda\u00142o Ci si\u00119 znale\u0017A\u00107 potrzebne informacje?','Apakah Anda menemukan informasi yang Anda cari?','Vous avez trouv\u00E9 les informations que vous recherchez?','Did you find the information you were looking for?','\u005DE\u005E6\u005D0\u005EA \u005D0\u005EA \u005D4\u005DE\u005D9\u005D3\u005E2 \u005E9\u005D7\u005D9\u005E4 \u005E9\u005EA?','Did you find the information you were looking for?','Did you find the information you were looking for?'];var onYT=['Yes','Oui','\u00414\u00430','\u00662F','\u00306F\u003044','Ja','Sim','S\u000ED','\u00662F','\u00C608','Yes','Yes','S\u000ED','S\u000EC','Evet','\u00E43\u00E0A\u00E48','C\u000F3','Tak','Ya','Oui','Yes','\u005DB\u005DF','Yes','Yes'];var onNT=['No','Non','\u0041D\u00435\u00442','\u005426','\u003044\u003044\u003048','Nein','N\u000E3o','No','\u005426','\u00C544\u00B2C8 \u00C694','No','No','No','No','Hay\u00131r','\u00E44\u00E21\u00E48\u00E43\u00E0A \u00E48','Kh\u00F4ng','Nie','Tidak','Non','No','\u005DC\u005D0','No','No'];var onBT=['Send','Envoyer','\u0041E\u00442\u0043F\u00440\u00430\u00432\u00438\u00442 \u0044C','\u0053D1\u009001','\u009001\u004FE1','Senden','Enviar','Enviar','\u0050B3\u009001','\u00C804\u00C1A1','Send','Send','Enviar','Invia','G\u000F6nder','\u00E2A\u00E48 \u00E07','G\u001EEDi','Wy\u0015Blij','Kirim','Envoyer','Send','\u005E9\u005DC \u005D7','Send','Send'];var onD1T=['We appreciate all feedback, but cannot reply or give product support. Please do not enter contact information. If you require a response,','\u005E9anmoins, nous ne pouvons pas vous r\u00E9pondre, ni fournir d\u0027assistance produits. Si vous avez besoin d\u0027une r\u00E9ponse,','\u0041C\u0044B \u00440\u00430 \u00434\u0044B \u0043B\u0044E\u00431\u0044B\u0043C \u00432\u00430\u00448\u00438 \u0043C \u0043E\u00442\u00437\u0044B\u00432\u00430\u0043C, \u0043E\u00434\u0043D \u00430\u0043A\u0043E \u0043D\u00435 \u00441\u0043C\u0043E\u00436\u00435\u0043C \u0043E\u00442\u00432\u00435\u00442\u00438\u00442\u0044C \u0043D\u00430 \u0043D \u00438\u00445 \u00438\u0043B\u00438 \u0043F\u00440\u00435\u00434\u0043E\u00441 \u00442\u00430\u00432\u00438\u00442\u0044C \u0043F\u0043E\u00434\u00434\u00435 \u00440\u00436\u0043A\u00443 \u0043F\u00440\u0043E\u00434\u00443\u0043A\u00446 \u00438\u00438. \u00415\u00441\u0043B\u00438 \u00432\u0044B \u00445\u0043E\u00442 \u00438\u00442\u00435 \u0043F\u0043E\u0043B\u00443\u00447\u00438\u00442\u0044C \u0043E\u00442\u00432\u00435\u00442, ','\u00611F\u008C22\u0060A8\u0063D0\u004F9B\u0053CD \u009988\u00FF0C\u004F46\u006211\u004EEC\u0065E0\u006CD5\u0056DE\u00590D\u006216\u007ED9]

u4E88\u4EA7\u54C1\u652F\u6301\u3002\u5982\u679C\u60A8\u9700\u8981\u56DE\u5E94\uFF0C',\u30D5\u30A3\u30FC\u30C9\u30D0\u30C3\u30AF\u3092\u3044\u305F\u3060\u304D\u3042\u308A\u304C\u3068\u3046\u3054\u3056\u3044\u307E\u3059\u3002\u7533\u3057\u8A33\u3042\u308A\u307E\u305B\u3093\u304C\u3001\u8FD4\u4FE1\u3084\u88FD\u54C1\u30B5\u30DD\u30FC\u30C8\u306F\u884C\u3063\u3066\u304A\u308A\u307E\u305B\u3093\u3002\u5BFE\u5FDC\u304C\u5FC5\u8981\u306A\u5834\u5408\u306F\u3001', 'Wir freuen uns \u00FCber Ihre Kommentare und Anregungen, k\u00F6nnen Ihre Nachricht aber nicht beantworten oder Produktsupport bieten. Wenn Sie eine Antwort ben\u00F6tigen, ', 'N\u00F3s apreciamos todos os coment\u00E1rios, mas n\u00E3o podemos responde-los ou fornecer suporte para produtos. Se voc\u00EA precisar de uma resposta, ', 'Agradecemos todos sus comentarios, pero no podemos contestar o proporcionar asistencia de productos. Si necesita una respuesta, ',\u6211\u5011\u5341\u5206\u611F\u8B1D\u6240\u6709\u7684\u610F\u898B\u53CD\u61C9\uFF0C\u4F46\u7121\u6CD5\u56DE\u8986\u6216\u7D66\u4E88\u7522\u54C1\u652F\u63F4\u3002\u5982\u679C\u60A8\u9700\u8981\u56DE\u8986\uFF0C',\uD53C\uB4DC\uBC31\uC744 \uC8FC\uC154\uC11C \uAC10\uC0AC\uD569\uB2C8\uB2E4. \uD68C\uC2E0\uC744 \uB4DC\uB9AC\uAC70\uB098 \uC81C\uD488 \uC9C0\uC6D0\uC740 \uC81C\uACF5\uD574 \uB4DC\uB9B4 \uC218 \uC5C6\uC73C\uB2C8 \uC591\uD574 \uBD80\uD0C1\uB4DC\uB9BD\uB2C8\uB2E4. \uC751\uB2F5\uC774 \uD544\uC694 \uD558\uC2DC\uBA74 ', 'We appreciate all feedback, but cannot reply or give product support. Please do not enter contact information. If you require a response, ', 'We appreciate all feedback, but cannot reply or give product support. Please do not enter contact information. If you require a response, ', 'Agradecemos todos los comentarios, pero no podemos responder o proporcionar asistencia para productos. Si necesita una respuesta, ', 'Apprezziamo ogni tipo di feedback, ma non possiamo rispondere o fornire supporto sui prodotti. Se hai bisogno di una risposta, ', 'Geri bildiriminiz il\u00E7in te\u015Fekk\u00FCr ederiz. Ancak yan\u0131t veremiyor veya \u00FCr\u00FCn deste\u011Fi sa\u011Flayam\u0131yoruz. Yan\u0131t alman\u0131z gerekiyorsa ',\u00E4\u00E2\u00E3\u00E2\u00E2\u00E3\u00E9\u00E1\u00E4\u00E3\u00E1\u00E7\u00E8\u00E0\u00E4\u00E2\u00E3\u00E1\u00E4\u00E2\u00E7\u00E9 \u00E1\u00E5\u00E4\u00E2\u00E3\u00E2\u00E2\u00E1\u00E5\u00E2\u00E1\u00E5\u00E2\u00E3\u00E1\u00E2\u00E1\u00E9\u00E8\u00E9\u00E1\u00E4\u00E9\u00E3\u00E9\u00E1\u00E5\u00E2\u00E1 ', 'Ch\u00Fang t\u00F4i r\u1EA5t tr\u00E2n tr\u1ECDng m\u1ECDi ph\u1EA3n h\u1ED3i, nh\u01B0ng kh\u00F4ng th\u1EC3 tr\u1EA3 l\u1EDDi ho\u1EB7c h\u1ED7 tr\u1EE3 s\u1EA3n ph\u1EA9m. N\u1EBFu b\u1EA1n c\u1EA7n c\u00F3 c\u00E2u tr\u1EA3 l\u1EDDi ph\u1EA3n h\u1ED3i, ', 'Jeste\u015Bmy wdzi\u0119czni za wszystkie komentarze, ale nie mo\u017Cemy udzieli\u0107 odpowiedzi ani wsparcia produktowego. Je\u015Bli potrzebujesz odpowiedzi, ', 'Kami menghargai semua umpan balik, tapi tidak dapat membalas atau memberikan dukungan produk. Jika Anda membutuhkan tanggapan, ', 'Nous vous remercions pour vos commentaires. N\u00E9anmoins, nous ne pouvons pas vous r\u00E9pondre, ni fournir d'assistance produits. Si vous avez besoin d'une r\u00E9ponse, ', 'We appreciate all feedback, but cannot reply or give product support. Please do not enter contact information. If you require a response, ',\u05D0\u05E0\u05D5 \u05DE\u05E2\u05E8\u05D9\u05DB\u05D9\u05DD \u05DB\u05DC \u05DE\u05E9\u05D5\u05D1, \u05D0\u05DA \u05D0\u05D9\u05E0\u05E0\u05D5 \u05D9\u05DB\

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u05D5\u05DC\u05D4\u05DD\u05D4\u05D9\u05E9\u05D9\u05D1 \u05D0\u05D5 \u05DC\u05D4\u05E2\u05E0\u05D9\u05E7 \u05EA\u05DE\u05D9\u05DB\u05D4 \u05D1\u05DE\u05D5\u05E6\u05E8. \u05D0\u05DD \u05D0\u05EA\u05D4 \u05D6\u05E7\u05D5\u05E7 \u05DC\u05EA\u05D2\u05D5\u05D1\u05D4, ', 'We appreciate all feedback, but cannot reply or give product support. Please do not enter contact information. If you require a response, ', 'We appreciate all feedback, but cannot reply or give product support. Please do not enter contact information. If you require a response, '];var onD2T=['contact support.','contactez l\u02019assistance.','\u043E\u0431\u0440\u0430\u0442\u0438\u0442\u0435\u0441\u0441\u044C \u0432 \u0441\u043E\u0443\u0436\u0431\u0443 \u043F\u043E\u043E\u0434\u0434\u0430\u0436\u043A\u0438.','\u8BF7\u8054\u7CFB\u652F\u6301\u90E8\u95E8\u3002','\u30B5\u30DD\u30FC\u30C8\u306B\u304A\u554F\u3044\u5408\u308F\u305B\u304F\u3060\u3055\u3044\u3002','wenden Sie sich bitte an den Support.','entre em contato com o suporte.','p\u00F3ngase en contacto con soporte.','\u8ACB\u806F\u7D61\u652F\u63F4\u3002','\uC9C0\uC6D0uD300uC5D0 \uBB38uC758 \uBC14\uB78D\uB2C8\uB2E4.','contact support.','contact support.','p\u00F3ngase en contacto con el servicio de asistencia.','contatta il supporto.','\u00FCften Destek b\u00F6\u00FCm\u00FCne ba\u015Fvurun.','\u0E01\u0E23\u0E38\u0E13\u0E32\u0E15\u0E34\u0E14\u0E15\u0E48\u0E2D\u0E1D\u0E48\u0E32\u0E22\u0E1A\u0E23\u0E34\u0E01\u0E32\u0E23\u0E2A\u0E19\u0E31\u0E1A\u0E2A\u0E19\u0E38\u0E19','xin li\u00EAn h\u1EC7 nh\u00F3m h\u1ED7 tr\u1EE3.','skontaktuj si\u0119 z pomoc\u0105 techniczn\u0105.','\u05E6\u05D5\u05E8 \u05E7\u05E9\u05E8 \u05E2\u05DD \u05D4\u05EA\u05DE\u05D9\u05DB\u05D4.','contact support.','contact support.'];var onLT=['https://www.intel.com/content/www/us/en/support/contact-intel.com','https://www.intel.fr/content/www/fr/fr/support/contact-intel.com','https://www.intel.ru/content/www/ru/ru/support/contact-intel.com','https://www.intel.cn/content/www/cn/zh/support/contact-intel.com','https://www.intel.co.jp/content/www/jp/ja/support/contact-intel.com','https://www.intel.de/content/www/de/de/support/contact-intel.com','https://www.intel.com.br/content/www/br/pt/support/contact-intel.com','https://www.intel.es/content/www/es/es/support/contact-intel.com','https://www.intel.com.tw/content/www/tw/zh/support/contact-intel.com','https://www.intel.co.kr/content/www/kr/ko/support/contact-intel.com','https://www.intel.sg/content/www/xa/en/support/contact-intel.com','https://www.intel.co.uk/content/www/uk/en/support/contact-intel.com','https://www.intel.la/content/www/xl/es/support/contact-intel.com','https://www.intel.it/content/www/it/it/support/contact-intel.com','https://www.intel.com.tr/content/www/tr/tr/support/contact-intel.com','https://www.thailand.intel.com/content/www/th/th/support/contact-intel.com','https://www.intel.vn/content/www/vn/vi/support/contact-intel.com','https://www.intel.pl/content/www/pl/pl/support/contact-intel.com','https://www.intel.co.id/content/www/id/id/support/contact-intel.com','https://www.intel.ca/content/www/ca/fr/support/contact-intel.com','https://www.intel.ca/content/www/ca/en/support/contact-intel.com','https://www.intel.co.il/content/www/us/en/support/contact-intel.com','https://www.intel.com.au/content/www/au/en/support/contact-intel.com','https://www.intel.in/content/www/in/en/support/contact-intel.com'];onObj.innerHTML='<div style="height:40px;padding-top:0;padding-right:15px;padding-bottom:0;padding-left:15px;margin:0;color:#FFFFFF;background-color:#00AEEF;font-family:\'intel-clear\'.\'Intel-Clear\'.\'intel clear\'.\'Intel
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Clear\','intelclear\','IntelClear\','Tahoma\','tahoma\','Helvetica\','helvetica\','Arial,sans-serif;font-size:16px;line-height:1;font-weight:bold;"><h2 style="display:inline-block;vertical-align:middle;margin-top:7px;margin-bottom:0;padding:0;color:#FFFFFF;font-family:\'intel-clear\','Intel-Clear\','intelclear\','IntelClear\','Tahoma\','tahoma\','Helvetica\','helvetica\','Arial,sans-serif;font-size:16px;line-height:1;font-weight:bold;">'+onFT[onsKey]+'</h2><button type="button" style="display:inline-block;vertical-align:middle;float:right;margin-top:5px;margin-bottom:0;padding:.3125em;cursor:pointer;background-color:transparent;border-color:transparent;color:#FFFFFF;font-family:\'intel-clear\','Intel-Clear\','intelclear\','IntelClear\','Tahoma\','tahoma\','Helvetica\','helvetica\','Arial,sans-serif;font-size:18px;line-height:1;font-weight:normal;" onclick="ONS\_closeYN();">X</button></div><div style="padding:15px;background-color:#FFFFFF;border-left:solid 1px #D7D7D7;color:#555555;"><p style="padding:0;margin-top:0;margin-bottom:15px;text-align:center;color:#555555;font-family:\'intel-clear\','Intel-Clear\','intel clear\','IntelClear\','Tahoma\','tahoma\','Helvetica\','helvetica\','Arial,sans-serif;font-size:14px;line-height:1.25;font-weight:normal;">'+onQT[onsKey]+'</p><div style="margin-top:0;padding-left:0;margin-bottom:15px;text-align:center;"><div id="feedback-yes-block" style="display:inline-block;width:70px;height:30px;margin-right:20px;padding:0;text-align:left;" onclick="ONS\_clickFeedback(1);"><input id="feedback-yes" type="radio" style="display:none;margin:0;padding:0;border:none;outline:none;-moz-user-select:none;" name="feedback-yes-no" value="1" autocomplete="off" /><label for="feedback-yes" style="box-sizing:border-box;display:inline-block;vertical-align:middle;margin:0;padding:0;background-color:transparent;background-image:url(https://www.intel.com/etc.clientlibs/settings/wcm/designs/ver/201112/intel/clientlibs/supportLibs/resources/images/support/yes-no-sprite.png);background-repeat:no-repeat;background-position:right top;text-align:left;cursor:pointer;width:31px;height:30px;border:solid 1px #FFFFFF;"><span style="display:inline-block;margin:0px 0px 0px 35px;padding:0;vertical-align:text-middle;text-align:left;text-transform:uppercase;color:#555555;font-family:\'intel-clear\','Intel-Clear\','intelclear\','IntelClear\','Tahoma\','tahoma\','Helvetica\','helvetica\','Arial,sans-serif;font-size:14px;line-height:28px;font-weight:normal;height:28px;width:50px;">'+onYT[onsKey]+'</span></label></div><div id="feedback-no-block" style="display:inline-block;width:70px;height:30px;margin:0;padding:0;text-align:left;" onclick="ONS\_clickFeedback(2);"><input id="feedback-no" type="radio" style="display:none;margin:0;padding:0;border:none;outline:none;-moz-user-select:none;" name="feedback-yes-no" value="2" autocomplete="off" /><label for="feedback-no" style="box-sizing:border-box;display:inline-block;vertical-align:middle;margin:0;padding:0;background-color:transparent;background-image:url(https://www.intel.com/etc.clientlibs/settings/wcm/designs/ver/201112/intel/clientlibs/supportLibs/resources/images/support/yes-no-sprite.png);background-repeat:no-repeat;background-position:right top;text-

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align:left;cursor:pointer;width:31px;height:30px;border:solid 1px
#FFFFFF;"><span style="display:inline-block;margin:0px 0px 0px
35px;padding:0;vertical-align:text-middle;text-align:left;text-
transform:uppercase;color:#555555;font-family:\'intel-clear\',\'Intel-Clear\',\'intel
clear\',\'Intel
Clear\',\'intelclear\',\'IntelClear\',Tahoma,\'tahoma\',Helvetica,\'helvetica\',Arial,sa
ns-serif;font-size:14px;line-height:28px;font-
weight:normal;height:28px;width:50px;">'+onNT[onsKey]+'</span></
label></div></div><div style="text-align:center;"><button type="button"
onclick="ONS_submitYN();" style="margin-top:0;margin-
bottom:15px;padding:.25em 4em;border:none;border-
radius:3px;cursor:pointer;background-color:#00AEEF;color:#FFFFFF;font-
family:\'intel-clear\',\'Intel-Clear\',\'intel clear\',\'Intel
Clear\',\'intelclear\',\'IntelClear\',Tahoma,\'tahoma\',Helvetica,\'helvetica\',Arial,sa
ns-serif;font-size:16px;line-height:1.25;font-weight:normal;">'+onBT[onsKey]
+'</button></div><p style="padding:0;margin-top:0;margin-
bottom:0;color:#BBBBBB;font-family:\'intel-clear\',\'Intel-Clear\',\'intel
clear\',\'Intel
Clear\',\'intelclear\',\'IntelClear\',Tahoma,\'tahoma\',Helvetica,\'helvetica\',Arial,sa
ns-serif;font-size:12px;line-height:1.25;font-weight:normal;">'+onD1T[onsKey]
+'<a href="'+onLT[onsKey]+'"' style="text-decoration:none;color:#0071C5;font-
family:\'intel-clear\',\'Intel-Clear\',\'intel clear\',\'Intel
Clear\',\'intelclear\',\'IntelClear\',Tahoma,\'tahoma\',Helvetica,\'helvetica\',Arial,sa
ns-serif;font-size:12px;line-height:1.25;font-weight:normal;"
target="_blank">'+onD2T[onsKey]+'</a></p></div>";onObj.style.cssText='dis
play:block;position:fixed;z-index:9998;bottom:15px;right:15px;background-
color:rgba(0,0,0,.2);width:90%;min-width:270px!important;max-width:400px!
important;height:auto;margin:0;padding-right:.5em;padding-
bottom:.5em;';dD.body.appendChild(onObj);}function ONS_clickFeedback(v){var
onObj;if(v==1){ONS_getObj('feedback-
yes').checked=true;ONS_getObj('feedback-
no').checked=false;onObj=ONS_getObj('feedback-yes-
block');onObj.getElementsByTagName('label')[0].style.backgroundPosition = 'left
top';onObj=ONS_getObj('feedback-no-
block');onObj.getElementsByTagName('label')[0].style.backgroundPosition =
'right top';}else{ONS_getObj('feedback-
yes').checked=false;ONS_getObj('feedback-
no').checked=true;onObj=ONS_getObj('feedback-yes-
block');onObj.getElementsByTagName('label')[0].style.backgroundPosition =
'right top';onObj=ONS_getObj('feedback-no-
block');onObj.getElementsByTagName('label')[0].style.backgroundPosition = 'left
top';}}function ONS_closeYN()
{ONS_sCookie('inteliqresearch','4',cd,ch);ONS_sCookie('inteliqresearch2','4',cd,c
h);var onObj=ONS_getObj('feedback-
widget');if(onObj)onObj.style.display='none';}function ONS_submitYN(){var
onAT=['Please provide an answer to the question(s).','Veuillez fournir une r\
u00E9ponse \u00E0 la ou aux questions.','\u041F\u043E\u0436\u0430\u043B\
u0443\u0439\u0441\u0442\u0430, \u043E\u0442\u0432\u0435\u0442\u044C\
u0442\u0435 \u043D\u0430 \u0432\u043E\u043F\u0440\u043E\u0441\u044B.','\
u8BF7\u63D0\u4F9B\u95EE\u9898\u7684\u7B54\u6848\u3002','u8CEA\u554F\
u306B\u56DE\u7B54\u3057\u3066\u304F\u3060\u3055\u3044\u3002','Bitte
geben Sie eine Antwort auf die Frage(n) an.','Forne\u00E7a uma resposta para
a(s) pergunta(s).','Proporcione una respuesta a la(s) pregunta(s).','u8ACB\
u63D0\u4F9B\u554F\u984C\u7684\u7B54\u6848\u3002','uC9C8\uBB38\uC5D0 \

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uB2F5\uD574 \uC8FC\uC2ED\uC2DC\uC624.','Please provide an answer to the question(s).','Please provide an answer to the question(s).','Proporcione una respuesta a la(s) pregunta(s).','Fornisca una risposta alla domanda (alle domande).','Sorular\u0131 yan\u0131tlay\u0131n.','\u0E42\u0E1B\u0E23\u0E14\u0E23\u0E30\u0E1A\u0E38\u0E04\u0E33\u0E15\u0E2D\u0E1A\u0E2A\u0E33\u0E2B\u0E23\u0E31\u0E1A\u0E04\u0E33\u0E16\u0E32\u0E21','Vui l\u00F2ng tr\u1EA3 l\u1EDD c\u00E1c c\u00E2u h\u1ECF.','Podaj odpowied\u017A na pytania.','Silakan berikan jawaban untuk pertanyaan.','Veuillez fournir une r\u00E9ponse \u00E0 la ou aux questions.','Please provide an answer to the question(s).','\u05E0\u05D0 \u05DC\u05E2\u05E0\u05D5\u05EA \u05E2\u05DC \u05D4\u05E9\u05D0\u05DC\u05D5\u05EA.','Please provide an answer to the question(s).','Please provide an answer to the question(s).'];var onLC=['en-US','fr-FR','ru-RU','zh-CN','ja-JP','de-DE','pt-BR','es-ES','zh-TW','ko-KR','en-XA','en-UK','es-XL','it-IT','tr-TR','th-TH','vi-VN','pl-PL','id-ID','fr-CA','en-CA','he-IL','en-AU','en-IN'];var onA1='';var onA3='0';if(ONS\_gCookie('inteliqresearch')==='3'){onA3='1';}var onObj=ONS\_getObj('feedback-yes');if(onObj&&onObj.checked)onA1='1';onObj=ONS\_getObj('feedback-no');if(onObj&&onObj.checked)onA1='2';if(onA1==''){wN.alert(onAT[onsKey]);return;}else if(ONS\_gCookie('inteliqresearch')==='3' || ONS\_gCookie('inteliqresearch2')==='3'){onObj=dD.createElement('script');onObj.src=dD.location.protocol+'//onsite2.researchintel.com/xWidget/httpPost/W14JT015.ashx?onYesNo='+encodeURIComponent(onA1)+'&ss='+wN.screen.width+'x'+wN.screen.height+'&onCurl='+encodeURIComponent(dD.location)+'&a3='+encodeURIComponent(onA3)+'&onRUrl='+encodeURIComponent(ONS\_gCookie(cn+'REF'))+'&onLang='+encodeURIComponent(onLC[onsKey])+'&sid='+encodeURIComponent(onsUSID)+'&uid='+encodeURIComponent(onsUUID);dD.body.appendChild(onObj);}ONS\_collectYN();ONS\_collectDataLake();}function ONS\_CDCollect(){if(ONS\_gCookie(cn+'STG')==='16' || ONS\_gCookie(cn+'STG')==='24' || ONS\_gCookie(cn+'STG')==='33'){var cd1,cd17,cd18,cd20,cd34,cd37,cd40,cd41;cd1=(typeof utag\_data!='undefined'&&typeof utag\_data['wa\_geo']!='undefined')?utag\_data['wa\_geo']:'';cd17=(typeof utag\_data!='undefined'&&typeof utag\_data['wa\_target\_audience']!='undefined')?utag\_data['wa\_target\_audience']:'';cd18=(typeof utag\_data!='undefined'&&typeof utag\_data['wa\_resource\_type']!='undefined')?utag\_data['wa\_resource\_type']:'';cd20=(typeof utag\_data!='undefined'&&typeof utag\_data['content\_org\_initiative']!='undefined')?utag\_data['content\_org\_initiative']:'';cd34=(typeof utag\_data!='undefined'&&typeof utag\_data['wa\_system\_type']!='undefined')?utag\_data['wa\_system\_type']:'';cd37=(typeof utag\_data!='undefined'&&typeof utag\_data['wa\_topic']!='undefined')?utag\_data['wa\_topic']:'';cd40=(typeof utag\_data!='undefined'&&typeof utag\_data['target\_campaign\_recipe\_name']!='undefined')?utag\_data['target\_campaign\_recipe\_name']:'';cd41=(typeof utag\_data!='undefined'&&typeof utag\_data['wa\_emt\_org']!='undefined')?utag\_data['wa\_emt\_org']:'';if(cd1!='' || cd17!='' || cd18!='' || cd20!='' || cd34!='' || cd37!='' || cd40!='' || cd41!=''){var cdcollect=new Image();var t=new Date();var qs='?cUrl='+encodeURIComponent(ONS\_gURL(dD.location,true))+'&t='+Date.UTC(t.getFullYear(),t.getMonth()+1,t.getDate(),t.getHours(),t.getMinutes(),t.getSeconds());qs+='&cd1='+encodeURIComponent(cd1);qs+='&cd17='+encodeURIComponent(cd17);qs+='&cd18='+encodeURIComponent(cd18);qs+='&cd20='+encodeURIComponent(cd20);qs+='&cd34='+encodeURIComponent(cd34);qs+='&cd37='+encodeURIComponent(cd37);

cd37);qs+='&cd40='+encodeURIComponent(cd40);qs+='&cd41='+encodeURIComponent(cd41);cdcollect.src=onsPATH+'saveCDData.asp'+qs;}} }wN.yn\_header\_background\_color\_css='#004A86';wN.yn\_header\_text\_color\_css='#FFFFFF';wN.yn\_body\_background\_color\_css='#FFFFFF';wN.yn\_body\_text\_color\_css='#555555';wN.yn\_body\_link\_color\_css='#0071C5';wN.yn\_text\_family\_css='\intel-clear','\Intel-Clear','\intel clear','\Intel Clear','\intelclear','\IntelClear','Tahoma','tahoma','Helvetica','helvetica','Arial,sans-serif';wN.yn\_shadow\_color\_css='rgba(0,0,0,.2)';wN.yn\_api\_url=dD.location.protocol+'//onsite2.researchintel.com/xWidget/httpPost/W21JT043.ashx';wN.yn\_icon\_uri=' MVEUAAAD////////////////////////////////////+4/eNVAANnRSTIMATrPqqpdh+cwH4cZ95dTBdWwS+/WhnlQhGxgnBO7QjkPe2ohSSS2INzMNCrIYP/KuZ1Q7XJ6DFjl+AAADhkIEQVRYw82W2XaqQBBFC1FEFBVnRIIGTRwSpyT1/59206PdbStwFw/Zb56FRVPDqYa/QSv0J1AiVUQcQWn0OvhLFcrizUXCEEpiU0fKO5RDF/H/AvZealOL/Eji1Vvzwjn05ojpvVwh8dwE6gUDNkZIMOWpT9TXGOKCVT4ukRAZ8paWt9L4jUxOWDjvY00+UrUGwAKec1fjjjQX62u6IALW02G0y9O2IVr7dkhVh78UOcHQmcFTvvtlqejynpY33AKniZKwtjmlsho63lCEDHtSeEQDdt9FPgePGCEDLenyYu5zQ1iZ9wUQdv2kBXkjHqTU20FFmJP/Ke5hTs6yLIY0hA9rOKKI7ErJTPRNVWdvRNpsHk2V5dXXkh7PFeTV3zanjjblafJzR9u7/PqZ7evb0SsoWBk8+fmNHvPaJWLUFa/mBZDc+F+QRY/+At/LEGJHGFz6r4hi46ciFmlklhaYjPSG2eVaStk2+z0BGJFNZcfuZiQ8KG2ysG2H/gXTvBGpFWpl0ZwRzstTaQ3hnO/2nKMUK14Q3TwhqP1H7o7cSL6UF0Yy5xXsHPZg0KKOAFyoclaOGOk9K/yyOoXuChwx3utdfoA76hwVglam+CitOkSsS9D0lovQmOAKmsloOHdmxMtzZ4FTL+iKj+opzTOCRaoE4IWkaSxSDqdr+CNBvRJZh02sTy1+wFpxBYadOia6CqKe9QnfgO+NPU1OXYIFifeUKp4R/Djjfp7Lnpqx6kMCJOBbl4z/fwmWhGZNSfSE0pbVc5yF/ZYwGwqYjS2ARNepRmSzlmZr5JS52M5ESPr6wEhZD/e+DZqYU4GjrYcg5snsJIHfHt8YW66qnMEqnO8s0nqN9gYZWO6ubMMNmorrVmxvnlK56d5AJMp0SFRbsmHAeYn2NluG11qP0shLbAIDmjEiDi/tkkCJ8ruLULjbp2f+nl/Sa/LT10L2H1w8hfMS3+hm77g07xo5qzMMgGFWXCLZzL5yNU2e/v9bw0W1j5mMbTfdwdHsPOZEXIMGp7ozQk85DgK8SGe8SzR2JJ5RsMZuvZ22YLGTPvJodjxqKgQTsxijhgXeRBTijjc80MS3CZyyaQhX3Aa6ATh0yeQW4+rc6qefb8EwpwRYZ9DMakujEUwUFBuLX0Qu3Dg2KsZXmnUAbyhNUZIMNGILcs1vwqVhoL5sLI0aic0jf4C/wDX1h7D2aoWzIAAAAASUVORK5CYII=';wN.yn\_load\_uri='';wN.yn\_feedback\_text='Give Feedback';wN.yn\_question\_text='Did you find this information useful?';wN.yn\_question\_text2='How likely is it that you would recommend Intel to a friend or colleague?';wN.yn\_question\_text3='Please tell us how we can improve the experience to better meet your needs?';wN.yn\_yes\_text='Yes';wN.yn\_no\_text='No';wN.yn\_nps\_text0='Not at All



[illegible]

[illegible]

u3044\u3002';wN.yn\_yes\_text='\u306F\u3044';wN.yn\_no\_text='\u3044\u3044\u3048';wN.yn\_nps\_text0='\u53EF\u80FD\u6027\u304C\u5168\u304F\u306A\u3044';wN.yn\_nps\_text10='\u53EF\u80FD\u6027\u304C\u975E\u5E38\u306B\u9AD8\u3044';wN.yn\_placeholder\_text='\u3054\u610F\u898B\u304C\u3042\u308C\u3070\u304A\u7B54\u3048\u304F\u3060\u3055\u3044\uFF1A';wN.yn\_disclaimer\_body\_text='\u30D5\u30A3\u30FC\u30C9\u30D0\u30C3\u30AF\u3092\u3044\u305F\u3060\u304D\u3042\u308A\u304C\u3068\u3046\u3054\u3056\u3044\u307E\u3059\u3002\u7533\u3057\u8A33\u3042\u308A\u307E\u305B\u3093\u304C\u3001\u8FD4\u4FE1\u3084\u88FD\u54C1\u30B5\u30DD\u30FC\u30C8\u306F\u884C\u3063\u3066\u304A\u308A\u307E\u305B\u3093\u3002\u5BFE\u5FDC\u304C\u5FC5\u8981\u306A\u5834\u5408\u306F\u3001';wN.yn\_disclaimer\_link\_text='\u30B5\u30DD\u30FC\u30C8\u306B\u304A\u554F\u3044\u5408\u308F\u305B\u304F\u3060\u3055\u3044\u3002';wN.yn\_submit\_text='\u9001\u4FE1';wN.yn\_alert\_text='\u8CEA\u554F\u306B\u56DE\u7B54\u3057\u3066\u304F\u3060\u3055\u3044\u3002';wN.yn\_success\_text='\u672C\u30A2\u30F3\u30B1\u30FC\u30C8\u306B\u3054\u5354\u529B\u3044\u305F\u3060\u304D\u3001\u3042\u308A\u304C\u3068\u3046\u3054\u3056\u3044\u307E\u3059\u3002';wN.yn\_lang='ja-JP';wN.yn\_contact\_url='https://www.intel.co.jp/content/www/jp/ja/support/contact-intel.com';}if(onsKey==5){wN.yn\_feedback\_text='Teilen Sie uns Ihr Feedback mit';wN.yn\_question\_text='Fanden Sie diese Informationen n\u00FCtzlich?';wN.yn\_question\_text2='Wie wahrscheinlich ist es, dass Sie Intel Freunden oder Kollegen empfehlen werden?';wN.yn\_question\_text3='Wie k\u00F6nnen wir Ihre Erfahrung verbessern, um Ihren Bed\u00FCrfnissen gerecht zu werden?';wN.yn\_yes\_text='Ja';wN.yn\_no\_text='Nein';wN.yn\_nps\_text0='Sehr unwahrscheinlich';wN.yn\_nps\_text10='Sehr wahrscheinlich';wN.yn\_placeholder\_text='Kommentare:';wN.yn\_disclaimer\_body\_text='Wir freuen uns \u00FCber Ihre Kommentare und Anregungen, k\u00F6nnen Ihre Nachricht aber nicht beantworten oder Produktsupport bieten. Wenn Sie eine Antwort ben\u00F6tigen, ';wN.yn\_disclaimer\_link\_text='wenden Sie sich bitte an den Support.';wN.yn\_submit\_text='Absenden';wN.yn\_alert\_text='Bitte geben Sie eine Antwort auf die Frage(n) an.';wN.yn\_success\_text='Vielen Dank f\u00FCr Ihre Teilnahme an dieser Umfrage.';wN.yn\_lang='de-DE';wN.yn\_contact\_url='https://www.intel.de/content/www/de/de/support/contact-intel.com';}if(onsKey==6){wN.yn\_feedback\_text='D\u00EA a sua opini\u00E3o';wN.yn\_question\_text='Voc\u00EA achou esta informa\u00E7\u00E3o \u00FAtil?';wN.yn\_question\_text2='Qual \u00E9 a probabilidade de voc\u00EA recomendar a Intel para um amigo ou um colega?';wN.yn\_question\_text3='Diga como podemos aprimorar a experi\u00Eancia para atender melhor \u00E0s suas necessidades.';wN.yn\_yes\_text='Sim';wN.yn\_no\_text='N\u00E3o';wN.yn\_nps\_text0='Nem um pouco prov\u00E1vel';wN.yn\_nps\_text10='Extremamente prov\u00E1vel';wN.yn\_placeholder\_text='Coment\u00E1rios:';wN.yn\_disclaimer\_body\_text='N\u00F3s apreciamos todos os coment\u00E1rios, mas n\u00E3o podemos responde-los ou fornecer suporte para produtos. Se voc\u00EA precisar de uma resposta, ';wN.yn\_disclaimer\_link\_text='entre em contato com o suporte.';wN.yn\_submit\_text='Enviar';wN.yn\_alert\_text='Forne\u00E7a uma resposta para a(s) pergunta(s).';wN.yn\_success\_text='Muito obrigado por participar desta pesquisa.';wN.yn\_lang='pt-BR';wN.yn\_contact\_url='https://www.intel.com.br/content/www/br/pt/support/contact-intel.com';}if(onsKey==7){wN.yn\_feedback\_text='Dejar comentario';wN.yn\_question\_text='\u00BFLe ha resultado \u00FAtil esta informaci\u00F3n?';wN.yn\_question\_text2='\u00BFCu\u00E9 su opini\u00F3n sobre esta informaci\u00F3n?';wN.yn\_question\_text3='C\u00F3mo podemos mejorar esta informaci\u00F3n?';wN.yn\_lang='es-ES';wN.yn\_contact\_url='https://www.intel.es/content/www/es/es/support/contact-intel.com';}

u00E1l es la probabilidad de que recomiende Intel a un amigo o colega?';wN.yn\_question\_text3='Cu\u00E9ntenos c\u00F3mo podemos mejorar la experiencia para satisfacer mejor sus necesidades.';wN.yn\_yes\_text='S\u00ED';wN.yn\_no\_text='No';wN.yn\_nps\_text0='Sumanente improbable';wN.yn\_nps\_text10='Sumamente probable';wN.yn\_placeholder\_text='Comentarios:';wN.yn\_disclaimer\_body\_text='Agradecemos todos los comentarios, pero no podemos responder o proporcionar asistencia para productos. Si necesita una respuesta, ';wN.yn\_disclaimer\_link\_text='p\u00F3ngase en contacto con el servicio de asistencia.';wN.yn\_submit\_text='Enviar';wN.yn\_alert\_text='Proporcione una respuesta a la(s) pregunta(s)';wN.yn\_success\_text='Le agradecemos que haya dedicado su tiempo a completar esta encuesta.';wN.yn\_lang='es-ES';wN.yn\_contact\_url='https://www.intel.es/content/www/es/es/support/contact-intel.com';}if(onsKey==8){wN.yn\_feedback\_text='\u63D0\u4F9B\u610F\u898B\u8207\u5EFA\u8B70';wN.yn\_question\_text='\u9019\u500B\u8CC7\u8A0A\u5C0D\u60A8\u662F\u5426\u6709\u5E6B\u52A9\u5462\uFF1F';wN.yn\_question\_text2='\u60A8\u6709\u6C92\u6709\u53EF\u80FD\u5411\u670B\u53CB\u6216\u540C\u4E8B\u63A8\u85A6\u4F7F\u7528 Intel\uFF1F';wN.yn\_question\_text3='\u8ACB\u544A\u8A34\u6211\u5011\u8A72\u5982\u4F55\u6539\u5584\u9AD4\u9A57\uFF0C\u4EE5\u66F4\u52A0\u6EFF\u8DB3\u60A8\u7684\u9700\u6C42\uFF1F';wN.yn\_yes\_text='\u662F';wN.yn\_no\_text='\u5426';wN.yn\_nps\_text0='\u6975\u4E0D\u53EF\u80FD';wN.yn\_nps\_text10='\u6975\u6709\u53EF\u80FD';wN.yn\_placeholder\_text='\u610F\u898B\uFF1A';wN.yn\_disclaimer\_body\_text='\u6211\u5011\u5341\u5206\u611F\u8B1D\u6240\u6709\u7684\u610F\u898B\u53CD\u61C9\uFF0C\u4F46\u7121\u6CD5\u56DE\u8986\u6216\u7D66\u4E88\u7522\u54C1\u652F\u63F4\u3002\u5982\u679C\u60A8\u9700\u8981\u56DE\u8986\uFF0C';wN.yn\_disclaimer\_link\_text='\u8ACB\u806F\u7D61\u652F\u63F4\u3002';wN.yn\_submit\_text='\u50B3\u9001';wN.yn\_alert\_text='\u8ACB\u63D0\u4F9B\u554F\u984C\u7684\u7B54\u6848\u3002';wN.yn\_success\_text='\u611F\u8B1D\u60A8\u64A5\u5197\u5B8C\u6210\u9019\u4EFD\u554F\u5377\u8ABF\u67E5\u3002';wN.yn\_lang='zh-TW';wN.yn\_contact\_url='https://www.intel.com.tw/content/www/tw/zh/support/contact-intel.com';}if(onsKey==9){wN.yn\_feedback\_text='\uD53C\uB4DC\uBC31';wN.yn\_question\_text='\uC774 \uC815\uBCF4\uAC00 \uB3C4\uC6C0\uC774 \uB418\uC168\uB098\uC694?';wN.yn\_question\_text2='\uC778\uD154\uC744 \uCE5C\uAD6C\uB098 \uB3D9\uB8CC\uC5D0\uAC8C \uCD94\uCC9C\uD560\uAC00\uB2A5\uC131\uC774 \uC5B4\uB290 \uC815\uB3C4 \uB429\uB2C8\uAE4C?';wN.yn\_question\_text3='\uADC0\uD558\uC758 \uD544\uC694\uB97C \uB354 \uC798 \uCC44\uC6B8 \uC218 \uC788\uB294 \uD658\uACBD\uC744 \uAC1C\uC120\uD560 \uBC29\uBC95\uC744 \uC800\uD76C\uC5D0\uAC8C \uC54C\uB824\uC8FC\uC138\uC694.';wN.yn\_yes\_text='\uC608';wN.yn\_no\_text='\uC544\uB2C8\uC694';wN.yn\_nps\_text0='\uC804\uD600 \uBD88\uAC00\uB2A5';wN.yn\_nps\_text10='\uB9E4\uC6B0 \uAC00\uB2A5';wN.yn\_placeholder\_text='\uC124\uBA85';wN.yn\_disclaimer\_body\_text='\uD53C\uB4DC\uBC31\uC744 \uC8FC\uC154\uC11C \uAC10\uC0AC\uD569\uB2C8\uB2E4. \uD68C\uC2E0\uC744 \uB4DC\uB9AC\uAC70\uB098 \uC81C\uD488 \uC9C0\uC6D0\uC740 \uC81C\uACF5\uD574 \uB4DC\uB9B4 \uC218 \uC5C6\uC73C\uB2C8 \uC591\uD574 \uBD80\uD0C1\uB4DC\uB9BD\uB2C8\uB2E4. \uC751\uB2F5\uC774 \uD544\uC694 \uD558\uC2DC\uBA74';wN.yn\_disclaimer\_link\_text='\uC9C0\uC6D0\uD300\uC5D0 \uBB38\uC758 \uBC14\uB78D\uB2C8\uB2E4.';wN.yn\_submit\_text='\uC804\uC1A1';wN.yn\_alert\_text='\uC9C8\uBB38\uC5D0 \uB2F5\uD574 \uC8FC\uC2ED\uC2DC\uC624.';wN.yn\_success\_text='\uBCF8 \uC124\uBB38 \uC870\uC0AC\uC5D0 \uC751\uD574 \uC8FC\uC154\uC11C \uAC10\uC0AC\uD569\uB2C8\u

uB2E4.';wN.yn\_lang='ko-KR';wN.yn\_contact\_url='https://www.intel.co.kr/content/www/kr/ko/support/contact-intel.com';}if(onsKey==10){wN.yn\_feedback\_text='Give Feedback';wN.yn\_question\_text='Did you find this information useful?';wN.yn\_question\_text2='How likely is it that you would recommend Intel to a friend or colleague?';wN.yn\_yes\_text='Yes';wN.yn\_no\_text='No';wN.yn\_nps\_text0='Not at All Likely';wN.yn\_nps\_text10='Extremely Likely';wN.yn\_placeholder\_text='Comments:';wN.yn\_disclaimer\_body\_text='We appreciate all feedback, but cannot reply or give product support. If you require a response, ';wN.yn\_disclaimer\_link\_text='contact support.';wN.yn\_submit\_text='Send';wN.yn\_alert\_text='Please provide an answer to the question(s).';wN.yn\_success\_text='Thank you for your participation!';wN.yn\_lang='en-XA';wN.yn\_contact\_url='https://www.intel.sg/content/www/xa/en/support/contact-intel.com';}if(onsKey==11){wN.yn\_feedback\_text='Give Feedback';wN.yn\_question\_text='Did you find this information useful?';wN.yn\_question\_text2='How likely is it that you would recommend Intel to a friend or colleague?';wN.yn\_yes\_text='Yes';wN.yn\_no\_text='No';wN.yn\_nps\_text0='Not at All Likely';wN.yn\_nps\_text10='Extremely Likely';wN.yn\_placeholder\_text='Comments:';wN.yn\_disclaimer\_body\_text='We appreciate all feedback, but cannot reply or give product support. If you require a response, ';wN.yn\_disclaimer\_link\_text='contact support.';wN.yn\_submit\_text='Send';wN.yn\_alert\_text='Please provide an answer to the question(s).';wN.yn\_success\_text='Thank you for your participation!';wN.yn\_lang='en-UK';wN.yn\_contact\_url='https://www.intel.co.uk/content/www/uk/en/support/contact-intel.com';}if(onsKey==12){wN.yn\_feedback\_text='Dejar comentario';wN.yn\_question\_text='\u00BFLe pareci\u00F3 \u00FAtil esta informaci\u00F3n?';wN.yn\_question\_text2='\u00BFCu\u00E9n probable es que recomiende a Intel a un amigo o colega?';wN.yn\_question\_text3='Por favor, d\u00E9ganos c\u00F3mo podemos mejorar la experiencia para satisfacer mejor sus necesidades.';wN.yn\_yes\_text='S\u00ED';wN.yn\_no\_text='No';wN.yn\_nps\_text0='Nada probable';wN.yn\_nps\_text10='Sumamente probable';wN.yn\_placeholder\_text='Comentarios:';wN.yn\_disclaimer\_body\_text='Agradecemos todos los comentarios, pero no podemos responder o proporcionar asistencia para productos. Si necesita una respuesta, ';wN.yn\_disclaimer\_link\_text='p\u00F3ngase en contacto con el servicio de asistencia.';wN.yn\_submit\_text='Enviar';wN.yn\_alert\_text='Proporcione una respuesta a la(s) pregunta(s).';wN.yn\_success\_text='Le agradecemos por haber dedicado su tiempo a completar esta encuesta.';wN.yn\_lang='es-XL';wN.yn\_contact\_url='https://www.intel.la/content/www/xl/es/support/contact-intel.com';}if(onsKey==13){wN.yn\_feedback\_text='Fornisci il tuo feedback';wN.yn\_question\_text='Queste informazioni sono state utili?';wN.yn\_question\_text2='Con che probabilit\u00E0 consiglieresti Intel a un amico o a un collega?';wN.yn\_question\_text3='Potresti dirci come possiamo migliorare l'esperienza per soddisfare meglio le tue esigenze?';wN.yn\_yes\_text='S\u00EC';wN.yn\_no\_text='No';wN.yn\_nps\_text0='Estremamente improbabile';wN.yn\_nps\_text10='Estremamente probabile';wN.yn\_placeholder\_text='Commenti:';wN.yn\_disclaimer\_body\_text='Apprezziamo ogni tipo di feedback, ma non possiamo rispondere o fornire supporto sui prodotti. Se hai bisogno di una risposta, ';wN.yn\_disclaimer\_link\_text='contatta il

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u0E2D\u0E43\u0E2B\u0E49\u0E01\u0E32\u0E23\u0E2A\u0E19\u0E31\u0E1A\u0E2A\u0E19\u0E38\u0E19\u0E14\u0E49\u0E32\u0E19\u0E1C\u0E25\u0E34\u0E15\u0E20\u0E31\u0E13\u0E11\u0E4C\u0E44\u0E14\u0E49 \u0E16\u0E49\u0E32\u0E04\u0E38\u0E13\u0E15\u0E49\u0E2D\u0E07\u0E01\u0E32\u0E23\u0E04\u0E33\u0E15\u0E2D\u0E1A';wN.yn\_disclaimer\_link\_text='\u0E01\u0E23\u0E38\u0E13\u0E32\u0E15\u0E34\u0E14\u0E15\u0E48\u0E2D\u0E1D\u0E48\u0E32\u0E22\u0E1A\u0E23\u0E34\u0E01\u0E32\u0E23\u0E2A\u0E19\u0E31\u0E1A\u0E2A\u0E19\u0E38\u0E19';wN.yn\_submit\_text='\u0E2A\u0E48\u0E07';wN.yn\_alert\_text='\u0E42\u0E1B\u0E23\u0E14\u0E23\u0E30\u0E1A\u0E38\u0E04\u0E33\u0E15\u0E2D\u0E1A\u0E2A\u0E33\u0E2B\u0E23\u0E31\u0E1A\u0E04\u0E33\u0E16\u0E32\u0E21';wN.yn\_success\_text='\u0E02\u0E2D\u0E1A\u0E04\u0E38\u0E13\u0E17\u0E35\u0E48\u0E2A\u0E25\u0E30\u0E40\u0E27\u0E25\u0E32\u0E17\u0E33\u0E41\u0E1A\u0E1A\u0E2A\u0E2D\u0E1A\u0E16\u0E32\u0E21\u0E19\u0E35\u0E49';wN.yn\_lang='th-TH';wN.yn\_contact\_url='https://www.thailand.intel.com/content/www/th/th/support/contact-intel.com';}if(onsKey==16){wN.yn\_feedback\_text='\u00DD Ki\u1EBFn Ph\u1EA3n H\u1ED3i';wN.yn\_question\_text='B\u1EA1n c\u00F3 th\u1EA5y th\u00F4ng tin n\u00E0y h\u1EEFu d\u1EE5ng kh\u00F4ng?';wN.yn\_question\_text2='How likely is it that you would recommend Intel to a friend or colleague?';wN.yn\_question\_text3='Vui l\u00F2ng cho ch\u00Fang t\u00F4i bi\u1EBFt c\u00E1ch ch\u00Fang t\u00F4i c\u00F3 th\u1EC3 c\u1EA3i thi\u1EC7n tr\u1EA3i nghi\u1EC7m \u0111\u1EC3 \u0111\u00E9p \u1EE9ng t\u1ED1t h\u01A1n nh\u00F9 c\u1EA7u c\u1EE7a b\u1EA1n?';wN.yn\_yes\_text='C\u00F3';wN.yn\_no\_text='Kh\u00F4ng';wN.yn\_nps\_text0='Not at All Likely';wN.yn\_nps\_text10='Extremely Likely';wN.yn\_placeholder\_text='Nh\u1EADn x\u00E9t';wN.yn\_disclaimer\_body\_text='Ch\u00Fang t\u00F4i r\u1EA5t tr\u00E2n tr\u1ECDng m\u1ECDi ph\u1EA3n h\u1ED3i, nh\u01B0ng kh\u00F4ng th\u1EC3 tr\u1EA3 l\u1EDDi ho\u1EB7c h\u1ED7 tr\u1EE3 s\u1EA3n ph\u1EA9m. N\u1EBFu b\u1EA1n c\u1EA7n c\u00F3 c\u00E2u tr\u1EA3 l\u1EDDi ph\u1EA3n h\u1ED3i,';wN.yn\_disclaimer\_link\_text='xin li\u00EAn h\u1EC7 nh\u00F3m h\u1ED7 tr\u1EE3.';wN.yn\_submit\_text='G\u1EEDi';wN.yn\_alert\_text='Vui l\u00F2ng tr\u1EA3 l\u1EDDi c\u00E1c c\u00E2u h\u1ECFi.';wN.yn\_success\_text='Ca\u0309m \u01A1n ba\u0323n \u0111\u0303a\u0300nh th\u01A1\u0300i gian ho\u0300a\u0300nh kh\u1EA3o s\u00E1t.';wN.yn\_lang='vi-VN';wN.yn\_contact\_url='https://www.intel.vn/content/www/vn/vi/support/contact-intel.com';}if(onsKey==17){wN.yn\_feedback\_text='Czekamy na Twój\u0105 opini\u0119';wN.yn\_question\_text='Czy te informacje by\u0142y dla Ciebie za przydatne?';wN.yn\_question\_text2='How likely is it that you would recommend Intel to a friend or colleague?';wN.yn\_question\_text3='Poinformuj nas, jak mo\u017Cemy poprawi\u0107 jako\u015B\u0107 us\u0142ug, aby lepiej spe\u0142nia\u0107 Twoje potrzeby?';wN.yn\_yes\_text='Tak';wN.yn\_no\_text='Nie';wN.yn\_nps\_text0='Not at All Likely';wN.yn\_nps\_text10='Extremely Likely';wN.yn\_placeholder\_text='Komentarze:';wN.yn\_disclaimer\_body\_text='Jest e\u015Bmy wdzi\u0119czni za wszystkie komentarze, ale nie mo\u017Cemy udzieli\u0107 odpowiedzi ani wsparcia produktowego. Je\u015Bli potrzebujesz odpowiedzi, ';wN.yn\_disclaimer\_link\_text='skontaktuj si\u0119 z pomoc\u0105 techniczn\u0105.';wN.yn\_submit\_text='Wy\u015Blij';wN.yn\_alert\_text='Podaj odpowied\u017A na pytania.';wN.yn\_success\_text='Dzi\u0119kujemy za czas po\u015Bwi\u0119cony na wype\u0142nienie tej ankiety.';wN.yn\_lang='pl-PL';wN.yn\_contact\_url='https://www.intel.pl/content/www/pl/pl/support/contact-intel.com';}if(onsKey==18){wN.yn\_feedback\_text='Berikan Umpan Balik';wN.yn\_question\_text='Apakah informasi ini

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berguna?';wN.yn_question_text2='Seberapa besar kemungkinan Anda akan
merekomendasikan Intel kepada teman atau
kolega?';wN.yn_question_text3='Sampaikan bagaimana kami dapat
meningkatkan pengalaman untuk memenuhi kebutuhan Anda dengan lebih
baik?';wN.yn_yes_text='Ya';wN.yn_no_text='Tidak';wN.yn_nps_text0='Tidak
Sama sekali';wN.yn_nps_text10='Sangat
Mungkin';wN.yn_placeholder_text='Komentar:';wN.yn_disclaimer_body_text='Ka
mi menghargai semua umpan balik, tapi tidak dapat membalas atau
memberikan dukungan produk. Jika Anda membutuhkan tanggapan,
';wN.yn_disclaimer_link_text='hubungi
dukungan.';wN.yn_submit_text='Kirim';wN.yn_alert_text='Silakan berikan
jawaban untuk pertanyaan.';wN.yn_success_text='Terima kasih atas partisipasi
Anda!';wN.yn_lang='id-ID';wN.yn_contact_url='https://www.intel.co.id/content/
www/id/id/support/contact-intel.com';};if(onsKey==19)
{wN.yn_feedback_text='Donnez votre avis';wN.yn_question_text='Ces
informations vous ont-elles \u00E9t\u00E9 utiles?';wN.yn_question_text2='Dans
quelle mesure seriez-vous susceptible de recommander Intel \u00E0 un ami ou
coll\u00E8gue ?';wN.yn_question_text3='Dites-nous comment nous pouvons am\u
\u00E9liorer votre exp\u00E9rience afin de mieux r\u00E9pondre \u00E0 vos
besoins ?';wN.yn_yes_text='Oui';wN.yn_no_text='Non';wN.yn_nps_text0='Pas du
tout probable';wN.yn_nps_text10='Hautement
probable';wN.yn_placeholder_text='Commentaires\
\u00A0';wN.yn_disclaimer_body_text='Nous vous remercions pour vos
commentaires. N\u00E9anmoins, nous ne pouvons pas vous r\u00E9pondre, ni
fournir d'assistance produits. Si vous avez besoin d'une r\u00E9ponse,
';wN.yn_disclaimer_link_text='contactez
l'assistance.';wN.yn_submit_text='Envoyer';wN.yn_alert_text='Veuillez fournir
une r\u00E9ponse \u00E0 la ou aux questions.';wN.yn_success_text='Merci de
votre
participation!';wN.yn_lang='fr-CA';wN.yn_contact_url='https://www.intel.ca/
content/www/ca/fr/support/contact-intel.com';};if(onsKey==20)
{wN.yn_feedback_text='Give Feedback';wN.yn_question_text='Did you find this
information useful?';wN.yn_question_text2='How likely is it that you would
recommend Intel to a friend or colleague?';wN.yn_question_text3='Please tell us
how we can improve the experience to better meet your
needs?';wN.yn_yes_text='Yes';wN.yn_no_text='No';wN.yn_nps_text0='Not at All
Likely';wN.yn_nps_text10='Extremely
Likely';wN.yn_placeholder_text='Comments:';wN.yn_disclaimer_body_text='We
appreciate all feedback, but cannot reply or give product support. If you require
a response, ';wN.yn_disclaimer_link_text='contact
support.';wN.yn_submit_text='Send';wN.yn_alert_text='Please provide an answer
to the question(s)';wN.yn_success_text='Thank you for your
participation!';wN.yn_lang='en-CA';wN.yn_contact_url='https://www.intel.ca/
content/www/ca/en/support/contact-intel.com';};if(onsKey==21)
{wN.yn_feedback_text='\u05D4\u05E2\u05E0\u05E7 \u05DE\u05E9\u05D5\
\u05D1';wN.yn_question_text='\u05D4\u05D0\u05DD \u05DE\u05D9\u05D3\
\u05E2 \u05D6\u05D4 \u05E9\u05D9\u05DE\u05D5\u05E9\u05D9 \u05DC\u05D3\
\u05E2\u05EA\u05DA?';wN.yn_question_text2='How likely is it that you would
recommend Intel to a friend or colleague?';wN.yn_question_text3='\u05E1\
\u05E4\u05E8 \u05DC\u05E0\u05D5 \u05DB\u05D9\u05E6\u05D3 \u05E0\u05D5\
\u05DB\u05DC \u05DC\u05E9\u05E4\u05E8 \u05D0\u05EA \u05D4\u05D7\u05D5\
\u05D5\u05D9\u05D4 \u05DB\u05D3\u05D9 \u05DC\u05E2\u05E0\u05D5\u05EA \
\u05D8\u05D5\u05D1 \u05D9\u05D5\u05EA\u05E8 \u05E2\u05DC \u05D4\u05E6\
\u05E8\u05DB\u05D9\u05DD \u05E9\u05DC\u05DA?';wN.yn_yes_text='\u05DB\

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u05DF';wN.yn\_no\_text='\u05DC\u05D0';wN.yn\_nps\_text0='Not at All Likely';wN.yn\_nps\_text10='Extremely Likely';wN.yn\_placeholder\_text='\u05D4\u05E2\u05E8\u05D5\u05EA';wN.yn\_disclaimer\_body\_text='\u05D0\u05E0\u05D5\u05DE\u05E2\u05E8\u05D9\u05DB\u05D9\u05DD \u05DB\u05DC \u05DE\u05E9\u05D5\u05D1, \u05D0\u05DA \u05D0\u05D9\u05E0\u05E0\u05D5 \u05D9\u05DB\u05D5\u05DC\u05D9\u05DD \u05DC\u05D4\u05E9\u05D9\u05D1 \u05D0\u05D5 \u05DC\u05D4\u05E2\u05E0\u05D9\u05E7 \u05EA\u05DE\u05D9\u05DB\u05D4 \u05D1\u05DE\u05D5\u05E6\u05E8. \u05D0\u05DD \u05D0\u05EA\u05D4\u05D6\u05E7\u05D5\u05E7 \u05DC\u05EA\u05D2\u05D5\u05D1\u05D4, ';wN.yn\_disclaimer\_link\_text='\u05E6\u05D5\u05E8 \u05E7\u05E9\u05E8 \u05E2\u05DD \u05D4\u05EA\u05DE\u05D9\u05DB\u05D4.';wN.yn\_submit\_text='\u05E9\u05DC\u05D7';wN.yn\_alert\_text='\u05E0\u05D0 \u05DC\u05E2\u05E0\u05D5\u05EA \u05E2\u05DC \u05D4\u05E9\u05D0\u05DC\u05D5\u05EA.';wN.yn\_success\_text='\u05EA\u05D5\u05D3\u05D4 \u05E2\u05DC \u05D4\u05E9\u05EA\u05EA\u05E4\u05D5\u05EA\u05DA!';wN.yn\_lang='he-IL';wN.yn\_contact\_url='https://www.intel.co.il/content/www/us/en/support/contact-intel.com';};if(onsKey==22){wN.yn\_feedback\_text='Give Feedback';wN.yn\_question\_text='Did you find this information useful?';wN.yn\_question\_text2='How likely is it that you would recommend Intel to a friend or colleague?';wN.yn\_question\_text3='Please tell us how we can improve the experience to better meet your needs?';wN.yn\_yes\_text='Yes';wN.yn\_no\_text='No';wN.yn\_nps\_text0='Not at All Likely';wN.yn\_nps\_text10='Extremely Likely';wN.yn\_placeholder\_text='Comments:';wN.yn\_disclaimer\_body\_text='We appreciate all feedback, but cannot reply or give product support. If you require a response, ';wN.yn\_disclaimer\_link\_text='contact support.';wN.yn\_submit\_text='Send';wN.yn\_alert\_text='Please provide an answer to the question(s).';wN.yn\_success\_text='Thank you for your participation!';wN.yn\_lang='en-AU';wN.yn\_contact\_url='https://www.intel.com.au/content/www/au/en/support/contact-intel.com';};if(onsKey==23){wN.yn\_feedback\_text='Give Feedback';wN.yn\_question\_text='Did you find this information useful?';wN.yn\_question\_text2='How likely is it that you would recommend Intel to a friend or colleague?';wN.yn\_question\_text3='Please tell us how we can improve the experience to better meet your needs?';wN.yn\_yes\_text='Yes';wN.yn\_no\_text='No';wN.yn\_nps\_text0='Not at All Likely';wN.yn\_nps\_text10='Extremely Likely';wN.yn\_placeholder\_text='Comments:';wN.yn\_disclaimer\_body\_text='We appreciate all feedback, but cannot reply or give product support. If you require a response, ';wN.yn\_disclaimer\_link\_text='contact support.';wN.yn\_submit\_text='Send';wN.yn\_alert\_text='Please provide an answer to the question(s).';wN.yn\_success\_text='Thank you for your participation!';wN.yn\_lang='en-IN';wN.yn\_contact\_url='https://www.intel.in/content/www/in/en/support/contact-intel.com';};function ONS\_embedMyIntelStyle(){var sObj=dD.createElement('STYLE');sObj.innerHTML='.OnR-input input{position:absolute;opacity:0;cursor:pointer;height:0;width:0;}.OnR-checkmark{top:0;left:0;height:1.1em;width:1.1em;background-color:#fff;border-radius:50%;border:solid 2px #1f6af2;margin-top:0.4em;}.OnR-input input:checked ~ .OnR-checkmark{background-color:#2196F3;box-shadow: 0 0 4pt 2px #8eb4f8;}.OnR-checkmark:after{content:"";position:relative;display:none;}.OnR-input .OnR-checkmark:after{top:9px;left:9px;width:8px;height:8px;border-radius:50%;background:white;}#yesno-widget input:hover ~ label{background-color: #0083d7 !important;}#yesno-widget input:checked ~ label{background-

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color: #0083d7 !important;}#yesno-widget ::placeholder { color: #9a9a9a;
opacity: 1; }#yesno-widget :-ms-input-placeholder{ color: #9a9a9a; }#yesno-
widget ::-ms-input-placeholder{ color: #9a9a9a;}@media only screen and (max-
width:420px){#yesno-widget h2{font-weight: bold!important;}#yesno-
error{width: 92%!important;margin: 0 auto!important;margin-bottom:10px!
important;}#btn-close{font-weight: normal!important;}#btn-send{font-weight:
bold!important;width:95%!important;height: 40px !important;}#rating-1-
block,#rating-2-block,#rating-3-block,#rating-4-block,#rating-5-
block{width:20%!important;margin-right:0!important;height:80px!
important;}#rating-1-block label,#rating-2-block label,#rating-3-block
label,#rating-4-block label,#rating-5-block label{width:90%!important;margin-
right:0!important;height:80px!important;}#yesno-widget{background: #fff!
important;right:0!important;left:0!important;padding-right:0!important;padding-
left:0!important;width:100%!important;top:0!important;bottom:0!
important;}#yesno-comment{max-width:98%!important;width:98%!
important;min-height:100px!important;max-height:100px!important;}#yesno-1-
block,yesno-2-block{width:47%!important;}#yesno-1-block label,#yesno-2-block
label{height: 40px!important;padding-top: 4px!important;}#yesno-1-block label
span,#yesno-2-block label span{font-weight: bold!important;}#rating-1-block
label p,#rating-2-block label p,#rating-3-block label p,#rating-4-block label
p,#rating-5-block label p{white-space: normal; word-break: break-all;font-
weight: bold!important;}@media only screen and (max-width:320px){#rating-
1-block label p,#rating-2-block label p,#rating-3-block label p,#rating-4-block
label p,#rating-5-block label p{font-weight: normal!important;}#rating-1-block
label p.yn-bold,#rating-2-block label p.yn-bold,#rating-3-block label p.yn-
bold,#rating-4-block label p.yn-bold,#rating-5-block label p.yn-bold{font-weight:
bold!important;}}.landscape #yesno-widget{display: block;position !important:
absolute;bottom: AUTO !important;right: 0 !important;left: 0 !
important;background-color: #fff !important;width: 100% !important;height:
100VH !important;padding-right: 0 !important;padding-left: 0 !
important;padding-bottom: 0 !important;top: 0 !important; OVERFLOW: AUTO !
important;}.landscape #yesno-comment{width: 100% !
important;}.landscape .btnformcontainer {text-align: center !
important;}.landscape #yesno-1-block,.landscape #yesno-2-block,.landscape
#yesno-3-block{height: 40px !important;}.landscape #yesno-1-block
label,.landscape #yesno-2-block label,.landscape #yesno-3-block label{height:
38px !important;}.landscape #yesno-1-block span,.landscape #yesno-2-block
span,.landscape #yesno-3-block span{line-height: 38px !
important;}.landscape .selectdropdown {padding: 8px !important;}.landscape
#btn-send{width: 200px !important ;height: 40px !important;}.landscape
div#yesno-error {margin-top: 7px !important;width: 96% !important;margin: 0
auto;}.landscape div#yesno-widget-content{padding-bottom: 60px !
important;}.landscape #btn-widget{bottom: -74px;right: 48px !important;width:
40px !important;height: 188px;transform: rotate(-90deg) !important;-webkit-
transform: rotate(-90deg) !important;-webkit-transform: rotate(-90deg) !
important;-moz-transform: rotate(-90deg) !important;-o-transform: rotate(-
90deg) !important;-ms-transform: rotate(-90deg) !important;}.landscape #btn-
widget img{padding-right: 7px !important;transform: rotate(-90deg) !important;-
webkit-transform: rotate(-90deg) !important;-webkit-transform: rotate(-90deg) !
important;-moz-transform: rotate(-90deg) !important;-o-transform: rotate(-
90deg) !important;-ms-transform: rotate(-90deg) !important;}#btn-widget
{right: 48px !important;width: 40px !important;height: 188px;transform: rotate(-
90deg) !important;-webkit-transform: rotate(-90deg) !important;-webkit-
transform: rotate(-90deg) !important;-moz-transform: rotate(-90deg) !important;-

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o-transform: rotate(-90deg) !important;-ms-transform: rotate(-90deg) !
important;bottom: -74px;}#btn-widget img {width: 44px !important;padding-
right: 7px !important;transform: rotate(-90deg) !important;-webkit-transform:
rotate(-90deg) !important;-webkit-transform: rotate(-90deg) !important;-moz-
transform: rotate(-90deg) !important;-o-transform: rotate(-90deg) !important;-
ms-transform: rotate(-90deg) !important;}*::-ms-backdrop, #btn-widget { right:
60px !important;}@media only screen and (max-width:420px){#yesno-
widget{overflow-x: auto !important;}.selectdropdown {font-weight:
normal;height: 36px;}#yesno-1-block, #yesno-2-block {width: 47%!important}
#yesno-3-block {width: 96%!important}.btnformcontainer {text-align: center !
important;margin-bottom: 25px !important;} }@media only screen and (max-
width:420px){#btn-widget{bottom: -74px;right: 48px !important;width: 40px !
important;height: 188px ;transform: rotate(-90deg) !important;-webkit-
transform: rotate(-90deg) !important;-webkit-transform: rotate(-90deg) !
important;-moz-transform: rotate(-90deg) !important;-o-transform: rotate(-
90deg) !important;-ms-transform: rotate(-90deg) !important;}#btn-widget
img{padding-right: 7px !important;transform: rotate(-90deg) !important;-webkit-
transform: rotate(-90deg) !important;-webkit-transform: rotate(-90deg) !
important;-moz-transform: rotate(-90deg) !important;-o-transform: rotate(-
90deg) !important;-ms-transform: rotate(-90deg) !important;}*::-ms-backdrop,
#btn-widget { right: 60px !important;}}';dD.body.appendChild(sObj);}function
ONS_detectViewPort(){var bodyObj = document.body;if(window.innerWidth <
768){if(window.innerHeight < window.innerWidth)
{bodyObj.classList.add('landscape');}else{bodyObj.classList.remove('landscape')
}}else{bodyObj.classList.remove('landscape')}}window.addEventListener("resiz
e", ONS_detectViewPort);function ONS_showMyIntelWidget()
{if(dD.getElementsByClassName('idz-survey').length==0&&!
dD.getElementById('feedback-1')&&!
dD.getElementById('feedbackToolContainer'))
{ONS_embedMyIntelStyle();if(ONS_gCookie(cn+'STG')==='16')ONS_sCookie(cn+'S
TG','32',cdv,ch);var ynObtn=dD.createElement('DIV');ynObtn.onclick=function()
{ONS_detectViewPort();dD.getElementById('yesno-
widget').style.display='block';this.style.display='none';};ynObtn.id='btn-
widget';ynObtn.className='geo-0';var shtml='';shtml='<div class="inBtn"
style="width:50px;height:185px;padding-top:9px;padding-left:9px;padding-
right:7px;margin:0;color:'+yn_header_text_color_css+';background-
color:'+yn_header_background_color_css+';font-
family:'+yn_text_family_css+';font-size:16px;line-height:1;font-
weight:200;">';shtml+='';shtml+='<span style="display:block;position:absolute;top:100px;left:-50px!
important;right:auto!important;height:auto;width:auto;min-width:150px;text-
align:center;margin:0;padding:0;color:'+yn_header_text_color_css+';font-
family:'+yn_text_family_css+';font-size:16px;line-height:1;font-
weight:normal;transform:rotate(90deg);-webkit-transform:rotate(90deg);-webkit-
transform:rotate(90deg);-moz-transform:rotate(90deg);-o-transform:
rotate(90deg);-ms-transform:rotate(90deg);">'+yn_feedback_text+'</span></
div>';ynObtn.innerHTML=shtml;var
ynObj=dD.createElement('DIV');ynObj.id='yesno-
widget';ynObj.className='widget-geo-0';shtml='<div
style="height:3.3em;padding-top:0;padding-right:.75em;padding-
bottom:0;padding-
left:.75em;margin:0;color:'+yn_header_text_color_css+';background-
color:'+yn_header_background_color_css+';font-

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family:'+yn_text_family_css+';font-size:14px;line-height:1;font-
weight:200;">';shtml+='';shtml+='<span
style="cursor:pointer;display:inline-block;vertical-align:middle;margin-
top:.75em;margin-bottom:0;padding:0;color:'+yn_header_text_color_css+';font-
family:'+yn_text_family_css+';font-size:16px;line-height:1;font-weight:normal;"
onclick="ONS_minMyIntelWidget();">'+yn_feedback_text+'</span>';shtml+='<
button id="btn-close" type="button" style="display:inline-block;vertical-
align:middle;float:right;margin-top:.25em;margin-
bottom:0;padding:.3125em;cursor:pointer;background-color:transparent;border-
color:transparent;color:'+yn_header_text_color_css+';font-
family:'+yn_text_family_css+';font-size:21px;line-height:1;font-weight:200;"
onclick="ONS_closeMyIntelWidget();">X</button></div>';shtml+='<div
id="yesno-widget-content" style="padding:.73em;background-
color:'+yn_body_background_color_css+';border-left:solid 1px
#D7D7D7;color:'+yn_body_text_color_css+';">';shtml+='<div id="yesno-
widget-Q1-border"><p id="yesno-widget-Q1" style="padding:0;margin-
top:0;margin-bottom:0;text-align:left;color:'+yn_body_text_color_css+';font-
family:'+yn_text_family_css+';font-size:14px;line-height:1.25;font-
weight:bold;">'+yn_question_text+'</p>';shtml+='<div style="margin-
top:.5em;padding-left:0;margin-bottom:.5em;text-align:left;">';shtml+='<div
style="display:flex;justify-content:center;margin-top:1em;margin-
bottom:1.3em;">';shtml+='<label class="OnR-input" for="yesno-1"
style="display:flex;align-items:center;flex-flow:column;width:18%;font-
weight:normal;font-size:14px;cursor:pointer;"
onclick="ONS_cleanErrorMsg();">'+yn_yes_text+'<br /><input style="margin: 0
0.5em;" type="radio" id="yesno-1" name="yesno-yes-no" value="1" /><span
class="OnR-checkmark"></span></label>';shtml+='<label class="OnR-input"
for="yesno-2" style="display:flex;align-items:center;flex-
flow:column;width:18%;font-weight:normal;font-size:14px;cursor:pointer;"
onclick="ONS_cleanErrorMsg();">'+yn_no_text+'<br /><input style="margin: 0
0.3em;" type="radio" id="yesno-2" name="yesno-yes-no" value="2" /><span
class="OnR-checkmark"></span></label>';shtml+='</div></div></div>';shtml
l+='<p style="padding:0;margin-top:0;margin-bottom:0;text-
align:left;color:'+yn_body_text_color_css+';font-
family:'+yn_text_family_css+';font-size:14px;line-height:1.25;font-
weight:bold;">'+yn_question_text3+'</p>';shtml+='<div id="yesno-comment-
block" style="margin-bottom:1em;"><textarea id="yesno-comment"
name="yesno-comment" rows="3" maxLength="'+yn_onML[onsKey]+'""
placeholder="'+yn_placeholder_text+'""
onkeyup="ONS_countMyIntelWidget(this);" autocomplete="off"
style="resize:none;display:block;width:360px;min-width:260px!
important;width:360px;height:80px;min-height:80px;max-
height:80px;overflow:hidden;margin:0;padding:.5em;background-
color:#F3F3F3;border:1px solid
#F3F3F3;outline:none;color:'+yn_body_text_color_css+';font-
family:'+yn_text_family_css+';font-size:14px;line-height:1.25;font-
weight:normal;margin-top: 12px;"></textarea><p style="padding:0;margin-
top:0;margin-bottom:1em;color:#9c9c9c;font-family:'+yn_text_family_css+';font-
size:10px;line-height:1.2;font-weight:normal;padding-top:5px">(<span
id="yesno-comment-count">0</span>/' +yn_onML[onsKey]+'</p></div><div
id="yesno-error" style="margin-top:-8px;color:#721c24;background-

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color:#f8d7da;border: 1px solid #f5c6cb;font-size:12px;border-radius:
3px;display: none;padding: 5px;margin-bottom: 8px;font-
family:'+yn_text_family_css+'>'+yn_alert_text+'</div>';shtml+='<div
style="text-align:center;"><button type="button" id="btn-send"
onclick="ONS_submitMyIntelWidget();" style="display:inline-
block;width:125px;height:31px;margin-top:0;margin-
bottom:0;padding:0;border:none;border-radius:3px;cursor:pointer;background-
color:#0071C5;color:'+yn_header_text_color_css+';font-
family:'+yn_text_family_css+';font-size:14px;line-height:1;font-
weight:normal;text-align:center;text-
transform:capitalize;">'+yn_submit_text+'</button></div>';shtml+='<p
style="padding:0;margin-top:1em;margin-bottom:0;color:#BBBBBB;font-
family:'+yn_text_family_css+';font-size:12px;line-height:1.25;font-
weight:normal;">'+yn_disclaimer_body_text+'<a href="'+yn_contact_url+'"'
style="text-decoration:none;color:'+yn_body_link_color_css+';font-
family:'+yn_text_family_css+';font-size:12px;line-height:1.25;font-
weight:normal;">'+yn_disclaimer_link_text+'</a></p></
div>';ynObj.innerHTML=shtml;if(document.getElementsByClassName('avaamo__
chat__widget').length==0){ynObj.style.cssText='display:none;position:fixed;z-
index:9998;bottom:15px;left:15px;background-
color:'+yn_shadow_color_css+';width:400px;height:auto;margin:0;padding-
right:.5em;padding-
bottom:.5em;';ynObtn.style.cssText='display:block;position:fixed;z-
index:9998;bottom:-60px !important;left:85px !
important;width:50px;height:185px;padding-right:.5em;padding-
bottom:.5em;background-
color:'+yn_shadow_color_css+';cursor:pointer;';dD.body.appendChild(ynObj);dD.
body.appendChild(ynObtn);}else{ynObj.style.cssText='display:none;position:fixe
d;z-index:9998;bottom:15px;left:15px;background-
color:'+yn_shadow_color_css+';width:400px;height:auto;margin:0;padding-
right:.5em;padding-bottom:.5em;';ynObtn.style.cssText='display:inline-
block;position:absolute;z-index:9998;background-color:' + yn_shadow_color_css
+ ';cursor:pointer;top:-7.15em;left:6em !
important;';dD.body.appendChild(ynObj);dD.getElementsByTagName('footer')
[0].appendChild(ynObtn);}}function ONS_submitMyIntelWidget(){var
radiosYN=dD.getElementsByName('yesno-yes-no');var YNValid=false;var
ratingYN=dD.getElementsByName('rating');var ratingValid=false;var i= 0;while(!
YNValid&&i<radiosYN.length){if (radiosYN[i].checked){var
yesnoAnswer=radiosYN[i].value;YNValid=true;};i++;}var
yesnoComment=dD.getElementById('yesno-
comment').value;dD.getElementById('yesno-widget-
Q1').style.color='#555555';dD.getElementById('yesno-widget-Q1-
border').style.border='0px';if(!YNValid){dD.getElementById('yesno-
error').style.display='block';if(!YNValid){dD.getElementById('yesno-widget-
Q1').style.color='red';dD.getElementById('yesno-widget-Q1-
border').style.border='solid 3px red';}}else{var sid=onsUSID||
ONS_gCookie(cn+'SID');var uid=onsUUID||ONS_gCookie(cn+'UID');var
yn_qs_answers='?
sid='+sid+'&uid='+uid+'&onYesNo='+yesnoAnswer+'&onComment='+encodeU
RIComponent(yesnoComment)+'&onLang='+encodeURIComponent(yn_lang)
+'&onCurl='+encodeURIComponent(dD.location.href)
+'&ss='+wN.screen.width+'x'+wN.screen.height;var
yn_send_url=yn_api_url+yn_qs_answers;ONS_sendXDR(yn_send_url);dD.getElem
entById('yesno-widget-content').innerHTML='<div style="padding:10px;text-

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align:center;height:300px;margin-top:40px;"><img
src="" + yn_load_uri + ""></div>';setTimeout(function()
{ONS_successSend();},1000);}}function ONS_successSend()
{dD.getElementByld('yesno-widget-content').innerHTML='<div
style="padding:10px;height:300px;font-family:'+yn_text_family_css+';text-align:
center;"><div style="color:#155724;background-color:#d4edda;border-
color:#c3e6cb;padding:10px;font-size:12px;">'+yn_success_text+'</div></
div>';setTimeout(function()
{ONS_closeMyIntelWidget();},5000);ONS_collectDataLake();}function
ONS_sendXDR(urlQ){var ynXdr=null;var ynXhr=null;if(typeof XMLHttpRequest!
='undefined'){try{ynXdr=new XMLHttpRequest();}catch(e){ynXdr=null;}}else
if(wN.XMLHttpRequest){try{ynXhr=new XMLHttpRequest();if(!'withCredentials'
in ynXhr)ynXhr=null;}catch(e){ynXhr=null;}}if(ynXhr)
{ynXhr.onreadystatechange=function()
{};ynXhr.open('GET',urlQ,true);ynXhr.send();}else if(ynXdr)
{ynXdr.open('GET',urlQ);ynXdr.onprogress=function()
{};ynXdr.ontimeout=function(){};ynXdr.onerror=function()
{};ynXdr.onload=function(){};setTimeout(function()
{ynXdr.send();},0);}}function ONS_minMyIntelWidget()
{dD.getElementByld('yesno-
widget').style.display='none';dD.getElementByld('btn-
widget').style.display='block';}function ONS_closeMyIntelWidget()
{dD.getElementByld('yesno-widget').style.display='none';}function
ONS_cleanErrorMsg(){dD.getElementByld('yesno-
error').style.display='none';}function ONS_countMyIntelWidget(o)
{if(o.value.length>yn_onML[onsKey])o.value=o.value.substring(yn_onML[onsKey
]);var remaining=o.value.length;dD.getElementByld('yesno-comment-
count').innerHTML=remaining;}onsUSID='8056886452209M1659397249170';on
sUUID=ONS_gCookie(cn+'UID');if(onsUUID=='')
{ONS_sCookie(cn+'UID','8056886452209M1659397249170',365,ch);onsUUID='8
056886452209M1659397249170';}ONS_sCookie(cn+'SID',onsUSID,cdv,ch);if(ON
S_gCookie(cn+'STG')==')
{ONS_sCookie(cn+'STG','30',onsCookieExp,ch);}if((ONS_gCookie('inteliqresearch
')==1||ONS_gCookie('inteliqresearch2')==1)){ONS_launchYNInvite();}function
ONS_CoreSite()
{}setTimeout('ONS_initCore(true)',1000);setTimeout('ONS_showMyIntelWidget()',
5000);</script></body></html>

```